AMERICAN AGRICULTURIST

For the Farm, Garden, and Household.

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

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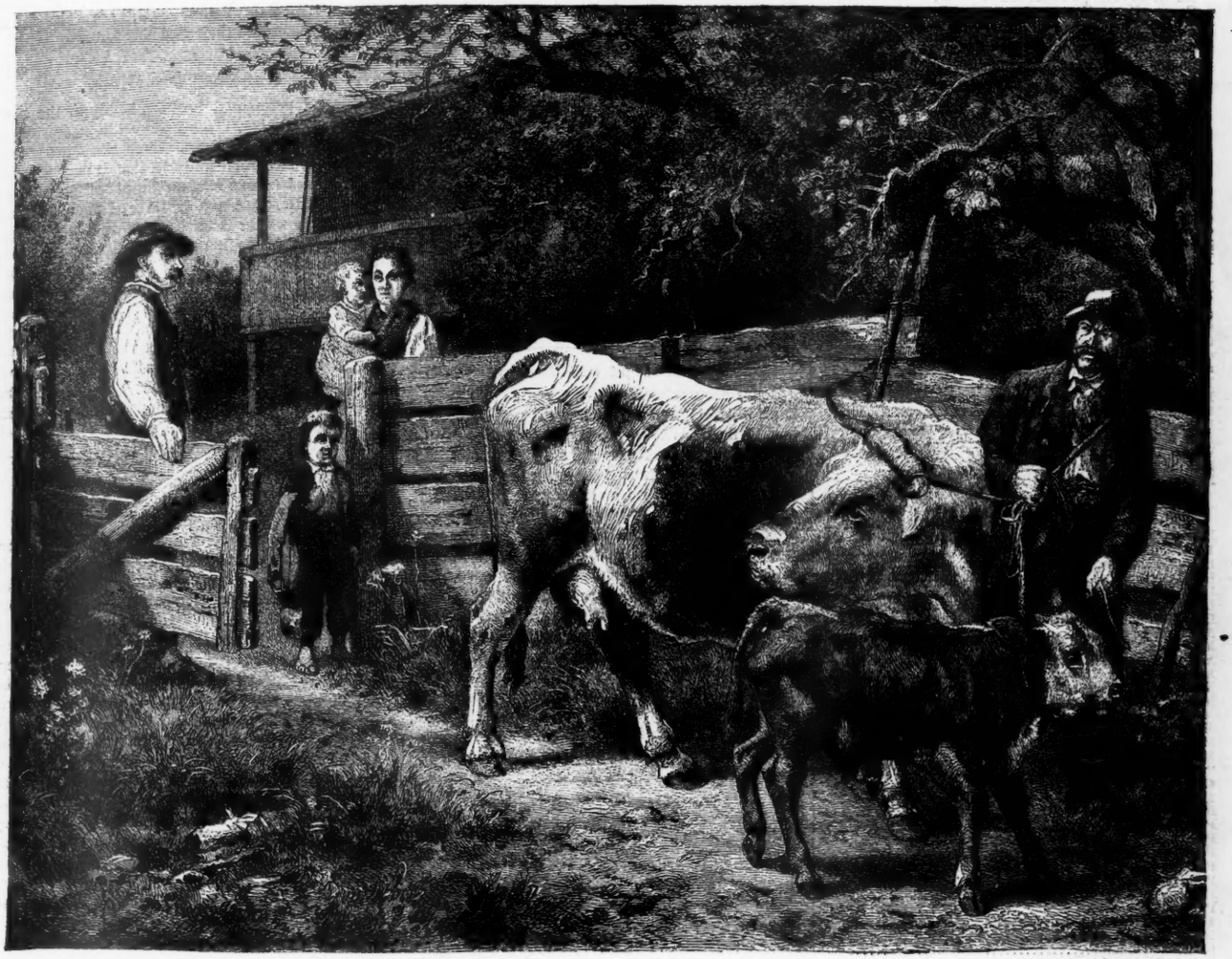

FAMILY PETS—PARTING OF FRIENDS.

The dividing line betwen the human and other animals, as respects intelligence, tact, and reasoning powers, is a narrow one, and difficult to fix definitely. Some of the latter often exhibit higher mental development in certain directions than many of the former. In going downward, intellectually, from man, it is usual to rank the ape family next, and then the horse and the dog—the respective friends of these last two not agreeing as to which holds the higher place. After these there is a long succession of animals to which no two persons would assign the same place in the descending scale—as the beaver, the fox, and so on down to those animals and insects following only a blind instinct. The common house rat will be placed high up by those who have tried to exterminate it by ingenious contrivances, or by any means save poison so placed that it would be taken by the human animal. No one can carefully study the animal creation without feeling that there are a hundred animals that may contest for supremacy in reasoning powers, and foresight in adapting means to ends.

The sentiments of friendship and affection, in all animals below man, are usually restricted to parental instinct, and a common interest in the care of the young, lasting only a single brief season, and then disappearing. But between man and several of the domestic animals there often exists a strong regard, akin to the affection of those of the same sex in our own race. In the engraving our artist has graphically illustrated a scene, not rare, where the sorrow at separation is almost as strongly evidenced by the maternal "bossy," as by the attitude, countenances, and tears of the bereaved family. For years the cow has been kindly cared for, fed, petted, and perhaps protected under a portion of the same roof; while in return she has contributed not a little to the family sustenance, particularly of the little ones. But now, stress of circumstances has compelled a lasting separation, and the expressions of grief are strong and mutual, at least on the part of the cow, who is doubtless endowed with the faculty of memory to a sufficient degree to recall past kindness. The simple calf has no such memories, and exhibits no emotion, though the children may regard the loss of this pet as much the greater one by far.

The American dairyman needs to visit the Channel Islands to learn the full extent to which kindness is carried in the rearing of cows. So long have they been a part of the household—fed, milked, brushed, and petted by women—that gentleness and an amiable temper have become strong traits of character in the Jersey breed of cattle. This power of developing the finer qualities of the bovine nature should be more thoroughly understood, and the treatment regulated accordingly. A kick costs more effort than an act of kindness, and does more harm than good.

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The Attention of the Reader is invited to the Announcements on pages 220 and 221.—The "Gallery of Paintings" is an unusually fine work, very highly appreciated by all who see it. The Special Premiums for MAY, are valuable.—The Call for Canvassers is a good opportunity for thousands of persons desiring light, pleasant employment. The General Premiums are still open as noted on page 221.

AMERICAN AGRICULTURIST.

NEW YORK, MAY, 1882.

Suggestions for the Season.

About Repairing Buildings.

The barns are usually empty at this season, and now is the best time to make any necessary repairs. If experience has shown the stables to be inconvenient, let the improvements be made before the barns are again filled. There may be some holes in the roof, and a little patching may save many times its cost, if done in season; in short, leaks of every kind about the farm buildings should be promptly stopped. Look well into the granary for mouse holes, through which the profits of a whole field may pass. They may be closed with a strip of tin. The work of half a day in looking for and closing these places, may be the most profitable of any done on the farm. The roofs, the floors, the sides, the doors, and all other parts of the barns, should now be put in good order, and another coat of paint be applied if the last one is beginning to wear through. A stitch in time will save more than nine in making such repairs.

Treatment of Bones.

Bones accumulate on every farm, and a hunt for them will bring out many more than one would expect to find. When properly treated, they furnish very valuable food for growing plants. Whole bones, as they are thrown out from the kitchen, are so slowly decomposed, that they are of little use, unless applied very largely. They need to be broken up or made fine in some way that the large amount of phosphoric acid, etc., contained in them may be available. It is not practicable for ordinary farmers to have bone mills, and the next best thing is to break them up somewhat with an axe or heavy hammer, and mix them with unleached ashes, keeping the heap moist enough so the alkali will "eat" them, and render the bones soft. The bones thus treated will crumble to fine pieces when dried, and are then ready to be spread upon the land. Every farmer should see that all bones are thus made into a valuable home-made fertilizer.

The Mangold Wurtzel.

Root Crops should hold a prominent place in the system of rotation, wherever the land is adapted to their production. One of the best of this class is the Mangold Wurtzel, concerning which "C. H.W.," Kings County, Nova Scotia, and several others make inquiries. This crop is very exhaustive when removed from the farm, but may be profitably grown for feeding purposes. It grows fairly on nearly all soils, but best on upland loams. Land free from stones and other obstructions, should be chosen. Deep plowing is beneficial, and for long varieties, is essential to success. After plowing, apply a liberal dressing of manure. The manure must be fined with a wheel-harrow, or other pulverizer. Cross-plow the manure under, and mix well with the soil to a depth of at least six inches. Commercial fertilizers, either the "Complete Manures," or the special fertilizers, which are made for this crop by several reputable firms, and are on sale throughout the country, may be applied to the surface, and will usually prove highly beneficial. Wood-ashes (unleached), ground bone, and superphosphates, are also valuable fertilizers for this crop. Salt, in quantities ranging from five to twenty-five bushels per acre, sometimes increases the crop. The soil must be made very fine, and the surface as smooth as possible. Sow the seed 4 to 6 pounds per acre at the North about the middle of May. Rows may be from 18 to 30 inches apart. The latter distance will admit of horse cultivation, but this is more expensive than closer planting, and the use of the wheel hoe and other hand implements. Level culture is cheaper than growing the crop on ridges, and will be generally found as satisfactory. If the ground is dry, soak the seed from thirty-six to forty-eight hours in warm water, keeping it up to blood heat. Afterwards roll the seeds in plaster if obtainable, and plant with a good drill. Cover the seed 1½ to 2 inches deep, unless on wet-lands, when shallower planting is better. Transplanting may be resorted to for filling vacant places in the rows. Thin to 10 or 12 inches. This will not give the largest roots, but a crop of heavy weight and good quality. Of the long varieties, the "Silesian," "Long Yellow," and "Carter's Improved," are among the best. The "Red Globe," "Yellow Globe," and the "Yellow Oval," are easier to harvest on account of their globular form.

Care of Pastures.

A good permanent pasture, handy to the barn-yard, is very convenient, almost a necessity, on every well regulated farm. Such a field needs to be well fertilized and cared for, that it may give the best returns in an abundant supply of green food, for farm stock. A top-dressing of fine well-rotted manure in winter is excellent, but if not done, a dressing of 50 to 100 pounds of nitrate of soda per acre may be applied. It is best to sow this just before a shower, that the rain may carry this very soluable food to the roots of the plants. After supplying the necessary fertilizers, it is important not to overstock the pasture. Let the adjustment between the number of animals and the capacity of the field be such, that there may be good feeding throughout the whole season. If such a pasture has a natural spring, its value is much increased The next to this is a well, provided with a windmill, for raising an abundant supply of water.

Haying Machinery.

The modern progressive farmer has many labor-saving machines within his reach to aid him in making hay. The scythe is serviceable in cutting the grass in fence corners and around trees, but further than this it does best when hanging out of harm's way in the barn. A rough field is now seldom a good excuse for not using the horse mower. Ground too rough for this implement, should be put in proper condition, or be left as a pasture. A "tedder" is a valuable aid, as it facilitates drying, and therefore the quicker housing of hay, thus escaping storms that ruin much hay made in the old, slow way. All of these machines, from the mower to the horse fork, should be in good trim for work before the time for using them. Every bolt, screw, hinge, and pulley, ought to be examined now and put in place. This is proper work for the rainy days, before the grass is ready to cut. See to these little things—making such purchases as may be necessary, thus keeping ahead of the work.

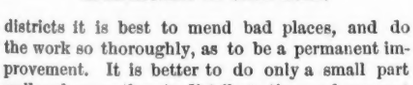
Abuse of Barn Cellars.

A great change has come over the farm during the last thirty years, in all our thrifty farming districts, in the general use of barn cellars. Formerly such an arrangement of the barn was a novelty, and farmers have slowly learned its great advantages. The greater comfort of cattle, the cheaper cleaning of stables, the more convenient watering of stock, the larger use of peat, muck, and headlands in the compost heap, and the greater value of the manure made under cover. Now the cry is raised of damage to fodder and stock from the barn cellar. Almost any good thing can be perverted and become a nuisance, and it were strange if men who do not read much, and think less, could not abuse the barn-cellar, which is the stomach of the farm. The same kind of men not infrequently abuse their own stomachs, and suffer greviously in consequence. "If you make your barn-cellar tight, carbonic acid gas and ammonia are thrown off and injure the quality of hay stored in the rooms above, and the health of the cattle in the stables. If you turn your pigs into the cellar to make compost, and keep them from the air and the light, they become diseased, and you put bad meat into your barrel to breed disease in your family." These are not uncommon complaints, circulating in our agricultural journals. Well, suppose we ad-

mit these things to be true, what of it? Is there any necessity for having a barn-cellar, without ventilation? If you leave one end open toward the south, you certainly have ventilation enough—and the gases that are evolved from fermenting manure are not going through two-inch stable plank and the tight siding of the barn when they have the wind to carry them off. If a barn cellar is properly managed, and seasonably furnished with absorbents, the ammonia will be absorbed as fast as it is formed. There will be no odor of ammonia that the nostrils can detect. If the pigs do not do the mixing fast enough, the shovel and the fork, the plow and the harrow, can be added. The making of compost under the barn is nice work for rainy days in winter, and is more likely to pay than any work exposed to the storm. The keeping of pigs under the barn is a question of two sides, and however we may decide it, barn cellars will stand upon their own merits. Any farmer who makes a business of raising pork for the market will find a well-appointed pig-stye, with conveniences for storing and cooking food, a paying investment. If he sees fit to utilize the labor of his pigs, by making compost in a well-ventilated barn-cellar, their health is not likely to suffer from the wholesome exercise, or that of his family from the use of the flesh. Swine, furnished with a dry sleeping apartment and plenty of litter for a bed, will keep comfortably clean, and not suffer from overwork in the compost heap. If anything is settled in the experience of the last thirty years, it is the economy of the barn-cellar. Our most intelligent farmers, who can command the capital, invest in them. A nice appendage to them is a watering trough fed by a spring or a large cistern in the embankment, to catch all the water, and bring it out by a faucet upon the stable floor above. This works admirably. Any farmer who reads the *American Agriculturist* will learn how to use the barn-cellar and not abuse it. C.

Road Making.

The rush and hurry of getting in spring crops closes with planting corn. A week or so of comparative leisure then follows, that may well be filled by working out the road tax. The kind of labor to be done on the highway depends much upon circumstances. If in a new country, the aim usually is to make the whole length of the road as passable as the allotted tax will permit. In older



CROSS-SECTION OF GOOD ROAD.

districts it is best to mend bad places, and do the work so thoroughly, as to be a permanent improvement. It is better to do only a small part well each year, than to distribute time and expense over the whole length of the highway doing nothing thoroughly, and repeating this year after year. When all the road bed has been properly made, the main work thereafter is to keep the surface hard, smooth, and of the right slope (see figure), that water may be carried off rapidly after a rain. A large >-scraper, drawn by four horses, passed over the road now and then as needed, will do much to make the old country roads what they should be.

Disposal of Rubbish.

In the course of years there will accumulate on every farm and in every garden, a quantity of unsightly stuff. Broken crockery and glassware, old fruit and tomato cans, worn out sauce-pans, and other wastes of the household. These can not be composted or turned to any useful purpose, and if allowed to be scattered about, make the surroundings unsightly. One of the best methods of getting rid of such stuff, is to dig a dry well, and provide it with a cover too heavy for children to displace, and deposit all such rubbish in this. When filled to within three feet of the top, take a piece of timber and pound down the contents as compactly as possible, and fill up with earth. The well thus covered can be planted over, and it will answer a good purpose as a local drain, while another receptacle can be made for future accumulations.

In the Poultry Yard.

The young chicks will thrive best when kept clean and dry. Those hatched this month, if of the best breeds, usually begin to lay early in the fall, and if kept warm and well fed, will give a supply of eggs through the winter. If the coops are placed in, or adjoining the garden, to allow the chicks to wander freely through it, they will do little harm, until large enough to scratch up the beds, and nibble at the plants, while they will destroy many insects. Let them have an abundance of pure water and wholesome food; these, with good housing from the wet and cold, will secure health and a profitable growth. See the fall treatment of the rearing of Turkeys, on page 201.

The Sheep and Lambs.

Fatten and market dry ewes as soon as possible. Some ewes which have lost their lambs, or from which they have been taken, will need to have the milk partially removed from their full udders for a few days. Neglect not to remove filthy tags. It is well also to clip the wool from about the udders, as much disease in the lambs is often caused by filth from the ewe's wool. There is but little in favor of washing wool on the sheep's back, and for old and feeble animals it is a positive injury. The practice is unnecessary, disagreeable, and dangerous to the health of both men and sheep, and may well be abolished. Sheep ought to be so kept, that the unwashed wool may be clean enough for market. Newly shorn sheep need protection during storms. If this be looked after properly, early shearing is not objectionable. After shearing, the ticks gather on the lambs, and may be destroyed by dipping them in tobacco water, with sulphur added, or some one of the various effective "Sheep Dips."

Care of the Horses.

Flies are a source of much discomfort and fretfulness. Nettings are now sold quite cheaply, and much more than pay their cost every year. In the absence of these, an easily made good protection is a thin cotton sheet fitted to the neck with holes for the ears, and buckled under the throat, or even tied there with straps of the same material. Let it cover the back and hang loose at the sides, to give free access of air; this may be held in place by a crupper-band passing under the tail.—When horses are not driven on hard stony roads, or used in stony fields, the shoes may be removed for a time with benefit to the feet.—A quantity of green fodder, as rye, etc., is very acceptable to mix with the dry feed. This keeps the system in good order, and saves the use of medicines. Ordinary light farm work seldom injures mares nearing their foaling time. They should be kept in good health. It may be necessary to give a gentle laxative, as bran or linseed-oil cake. If a purgative is needed, administer a pint of *raw* linseed oil.

About Sweet Corn.

Strange as may seem to those accustomed to sweet corn, there are parts of the country where it is yet unknown. In many places in the West and South people still content themselves with the "roasting ears" of the common field corn. The history of sweet corn is obscure, but there are facts which point to its origin with the Narragansett Indians in Rhode Island. There is the same difference between sweet and field corn that there is between wrinkled and common peas. The conversion of the contents of the grain into starch is arrested, and the seed in both remains much wrinkled. The writer can recollect when a Massachusetts man living in Rhode Island, sent annually by stage, as an acceptable present to his friends in Boston, a basket of sweet corn. It is within comparatively recent times that sweet corn has become common. The *American Agriculturist* no doubt reaches many who are not familiar with the varieties of corn known as "sweet," and we do a good service to these when we call attention to its superiority to any common kind of corn. The mail now allows every one to procure seeds from dealers anywhere at a mere trifle for postage, and the seed are within reach of all. Among the earliest varieties, "Early Minnesota" is one of the best; for the main crop, we have used "Triumph," and "Excelsior," and consider whichever one of these happens to be on the table at the time as the best. Besides these, there are a dozen or more varieties, all good, and vastly better than any kind of field corn.

Protecting Melon and Other Vines.

Every one at all conversant with raising melons, cucumbers, or squashes, knows well the propensity of the bugs to eat both leaves and stalks. They often appear by thousands, and unless hand picked, or poisoned, quickly destroy a large patch of promising vines. Some years they are worse than in others, and it is necessary to be always prepared for them, and this is best done by preventing their reaching the growing vine with some sort of screen or covering. Our usual practice, as soon as the vines appear, is to cut old newspapers into pieces about

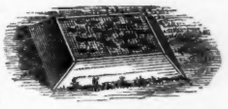
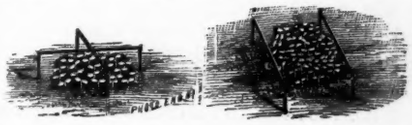


Fig. 1.—BOX PROTECTOR.



Figs. 2 and 3.—WIRE SUPPORTERS.

twenty inches square, and place one over each hill, covering the border with earth. This effectually keeps off the bugs. The plants raise the paper as they grow. But during a rain or heavy dew the paper breaks and the plants are at the mercy of the bugs. This plan does not answer well for the larger squash or pumpkin plants. A good protector is shown in figure 1, consisting of a box 12 inches square, and 5 or 6 inches high, with a piece of mosquito netting nailed across the top. Wire netting is more durable, and if painted such "boxes" will last a lifetime. Make the boxes bevelling, that is, wider at the bottom, for close packing in nests when not in use. An effective and cheap plan is to soak mosquito netting in oil, and when dry place it upon a frame over the vines. One method of doing this is shown in figure 2. The ends of two bent wires are placed in the earth to support the netting. A modification of this plan is shown in figure 3. Still another plan is given in figure 4, in which the supports are of wood. The netting should be cut about 24 inches square, and when placed over the frame, cover the edges with earth. Vines thus protected are safe, and will attain quite a growth before the covering need be removed.

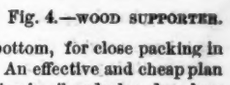


Fig. 4.—WOOD SUPPORTER.

Sweet Potatoes.

The sweet potato may be cultivated much farther north than is generally supposed. Indeed there is scarcely any locality where a crop of Indian corn can be grown, in which there may not be raised a crop of sweet potatoes, unless the soil is heavy and cold. In such soils success cannot be expected. Of course it is now too late to speak of starting the plants, but several advertise them every year, and there is no difficulty in getting them by mail, or in large quantities by express. Though the sweet potato is very sensitive to frost, there are few plants that will stand so much abuse in travel as this. If the plants at the start are well rooted, and no reputable grower will send out any others,

no matter if the sets have lost their leaves, so long as there is a green stem and a good root, they will grow. In all northern localities we advise, by all means, to plant upon ridges. It is a good plan to place rows of well rotted manure three feet apart, and then with the plow turn up ridges over the manure, and finish them with the spade. The ridges being made, level their tops, and set the plants every 15 inches. A common trowel, or an implement made from a shingle or other thin board, is the best thing for setting them. Thrust this straight down, and by moving it back and forth, open a hole; put in the plant down to the last eye. Then put in the trowel, or wooden substitute, a few inches away from the plant, and crowd the earth *firmly* up to it, filling the hole thus made with a stroke of the implement. If the soil of the ridges is very dry, it will be well to make the holes for the plants, fill them with water, and let it soak away, and then set the plants. Provide for a few more plants than are likely to be needed; these may be set out, close together in a convenient place, to be drawn upon to replace any that may die in the ridges. The after-culture consists in keeping the ridges clear of weeds, and after the vines run and cover the ground, occasionally lift them by running a hoe handle or other stick under them, and prevent them from taking root.

Tool Houses and Tools.

In a large garden it is a great convenience to have a garden house of some kind. A portion of a shed or other out-building, or a room made in the barn will answer. Its object is a place where the tools, and whatever else belongs to the garden, may be always found when wanted, and to which they may be returned when not in use, unexposed to storm and dew. We have known a board placed as a roof against a fence, with doors below, to answer well, but it is much better to have a room, with a place for seeds, and wall room enough to allow each tool to be hung up, and a bench on which to do needed work. The habit of returning tools to a fixed place is easily established, and will save much time in hunting for one when needed. All, save large implements, like the lawn mower, can be hung up, wooden pegs being more convenient than nails. There should be a place for labels, twine, wire, and all other things likely to be suddenly needed. The cupboard or other place for seeds, should have lock and key, and here should be kept Paris green and other poisons, where only those who are to use them can get at them.

Beginning Gardening in May.

A large number of our readers will no doubt change their place of residence on the first of this month, and must begin their gardening late, if at all. This should be no discouragement, as all but the very early crops will do well if sown now. But no time should be lost, as every day is of importance. Such plants as tomatoes, early cabbages, egg plants, and peppers, can be bought of those who raise them for sale. With beans, sweet-corn, melons, squashes, and all the tender vegetables, this month is early enough in all the Northern States. Even grape vines, and other small fruits may yet be planted, if dormant plants can be had. For the flower garden, most of the bedding plants may be purchased in pots, ready to be turned out and seeds of the desirable annuals sown.

What is Mulching?

Having used the term *Mulch*, for these many years, we were desirous of learning its origin, and after much search through cyclopædias and dictionaries, find it is derived from the Hebrew word for partly rotten straw. Loudon says: "Mulching consists in laying a circle of litter around newly planted trees to retain the natural humidity of the soil." Really, mulching is whatever will prevent evaporation from the soil, and in American practice is even extended to mellow earth, keeping the surface of the soil light by constant stirring so that it will be a poor conductor of heat. Still, by mulching, is generally understood the placing of some material upon the soil that will prevent evaporation, and it is of little consequence what this material may be. Chips, sticks, tan-bark, sawdust, straw, litter from the stables, leaves, grass, or small stones—whatever will cover the ground and prevent evaporation may be used as a mulch. We have known coal ashes to be used, and much virtue ascribed to the ashes, while they only prevented too rapid evaporation. We once visited a place upon which there were many fine evergreens; the owner claimed that his success in planting was due to placing flat stones from a neighboring quarry around the newly set trees. The stones, no doubt, did excellent service, as any other stones would have done—they simply served to keep the ground beneath them moist—as a mulch. The action of a mulch being merely mechanical, it makes no difference as to the material. The natural mulch is leaves, which not only prevent evaporation from below, but allow the rain to pass between them to add to the moisture of the soil. It is no doubt within the experience of every one that the earth beneath a stone, a board, or whatever has laid upon the surface, is always moist. This condition may be produced over a large surface, by merely covering it with any material that will prevent evaporation. With all newly set plants, whether trees or small plants in the garden, a little litter, or whatever may be at hand will be of great benefit. In an article on p. 206, we have given an account of some French experiments in covering the soil with an impervious material. Let any one who doubts its value mulch a part of his strawberry-bed, and leave a part of it uncovered; we are sure that he will be convinced of the value of mulching.

That Old Grape Vine.

Over a large portion of the country it is the custom to move on the first of May. In villages, especially, the new tenant is likely to find in his yard an old and neglected grape vine, the buds of which may have already started, even if the shoots have not begun to elongate. We receive each year inquiries as to what may be done with such a vine, and as these come quite too late for a reply to be of service, we anticipate them. One who has such a vine, and cuts it now, will find it bleeds abundantly, and whether, as some contend, this is of no injury, it is a great nuisance, which it is desirable to avoid. As no one neglected vine will be like any other, we can only give the most general directions. One standing before such a vine will find it to be made up of old and new stems, the new ones distinguished by their smaller size, brighter appearance, and prominent, if not already started buds. One general principle must be borne in mind. The growth—the shoots—that come from these buds, and *this only* will bear fruit. When the shoots are but a few inches long, the little clusters of fruit buds may be seen. To treat such a vine one must imagine that wherever a bud is now, there will, in a few weeks, be shoots several feet long. Every old vine is likely to show vastly more buds than ought to grow. As a general rule, we may say, take every last year's cane and break off all but the *lowest two* of these buds, and when the leaves of these have expanded, cut away the rest of the cane, no matter how long it may be. These two lower buds on each cane will give all the foliage and fruit—probably more—that will be needed. Do this all over the vine, recollecting that the shoot from each bud will produce by autumn, just such a cane as now bears them. Such vines are usually on an arbor of some kind, and the new growth should be arranged to cover it evenly and be tied where need be to prevent it from getting broken. On old vines, as the season advances, vigorous shoots may start out from the lower parts, and these, unless wanted to fill a bare place, should be broken off. As such vines are used in part for shade, the new shoots when they have grown as long as needed to properly cover the arbor, should be stopped in their growth by pinching out the growing end; this will cause the leaves to be much larger and help the growth of the fruit. As a general thing, all such vines are allowed to produce many more shoots than are needed, and the whole becomes a tangled mass of leafy stems with very little fruit.

The Egg Plant.

The Egg Plant is perhaps the most thoroughly tropical of all garden vegetables, and should not be put out until the soil is thoroughly warmed, and cool nights are over. In the private garden so few plants are needed, that it is hardly worth while to be at the trouble of raising them, as they can be purchased cheaply. They should be given the warmest and richest place in the garden; let them have, when established, liquid manure, and keep them growing as rapidly as possible. It is well to place a mulch of some kind around the plants, not only to keep the soil moist, but to prevent the fruit from resting on the ground. There is one great drawback to the culture of the Egg Plant. If there are any Colorado Potato Beetles anywhere in the vicinity, they will leave the potatoes and come to the Egg Plants, and unless one makes up his mind to an almost daily hand-picking, he had better not undertake to cultivate them.

Currants and Gooseberries.

The chief draw-back to the culture of currants and gooseberries is "the worm," (more than one, but essentially the same in effects and treatment), that makes holes in the leaves early in the season, and if not checked will soon strip off all the foliage. This insect is easily managed, if taken in time. It is amusing to see the remedies given in the English papers and books, even the most recent ignoring the poison, White Hellebore, so generally used in this country. Powdered White Hellebore (not *Black*) may be had at most drug stores. Upon a tablespoonful of this, pour a pint or so of boiling water, stirring the two well together; mix this with a pailful of cold water, and on the first appearance of holes in the leaves, apply it freely, using a garden syringe or force pump if at hand. More than two applications will rarely be needed.—*Is it dangerous?*—One English work advises the use of lime, "as not being dangerous like hellebore." While White Hellebore is a powerful medicine, we have never heard of any danger from its use, and we know of its application by the acre with those who grow fruit for market. It is always applied long before the fruit is ripe, and is completely washed off by the rains. Should it adhere to the fruit in any dangerous quantities, its presence would be noticed and the berries rejected as soiled. If used as directed, it is not possible for a sufficient quantity to adhere to the fruit to be eaten unnoticed, and thus do injury. We look upon it as perfectly safe, or we should not advise it.

The White Grub and the June Bug.

The ravages of the White Grub are becoming, in this country, almost as serious as those of the related Cockchafer in Europe—indeed the two, though belonging to different genera of insects, are much alike in their habits. The grub passes (probably) three years of its life under ground, and is not thought of until, in its last year, it suddenly calls attention to its existence by the mischief it does. A heretofore verdant lawn suddenly becomes brown, and the turf may be rolled up like a rug. One may look forward to a crop of strawberries, and find the plants wilt in the row, in succession. The nurseryman may find his rows of apple or other young trees suddenly dying, and the flower-grower may find his plants wither without apparent cause. Few connect these troubles with that noisy insect that at evening comes into the house and bumps its head against the walls and ceiling, generally known as the May and June-bug, and also as the Dor-bug. This insect probably causes more losses to cultivators than any other. The grub lives some three years under ground, in which state it works its worst. If when a plant is seen to suddenly wilt, it is probable that a White-grub is at work at the root, and the plant should at once be dug up and the grub found, before it can make its way to others. The only method of effectively destroying

this insect is to attack it in the beetle state. When a Dor-bug appears in the house, it is an indication that there are others in the trees near-by, and traps should be set for them. The destruction of one female beetle means the prevention of between one and two hundred grubs. During their season many that enter the house may be caught and destroyed by hand, but some one of the several lamp-traps that we have figured in former volumes, should be employed. If nothing better can be devised, a lamp set in a common tub, but all the better one made by cutting a barrel in halves, in the bottom of which is a few inches of water, with a film of kerosene or other oil floating upon it, will catch and destroy many. The matter is getting to be a serious one, and the destruction of the beetles should be a work of co-operation in order to be effective. In this, as in many other cases, the utility of Farmer's Clubs, to secure united action throughout the neighborhood, is manifested.

Late Flower Gardening.

In many localities it is the custom to move the first of May, and this is yearly extending. One may come into possession of a place, whether a village front yard, or a larger piece of ground, and find that the previous occupant has done nothing towards beautifying it. We will assume that one has to do with an ordinary village front yard, and the same hints will apply to larger places. The first thing of all to be considered is the lawn, by which we mean any piece of grass kept for ornament, whatever may be its size. The lawn by itself, if well kept, is an ornament to any place; it is like the carpet in the house, the setting of whatever furnishing may be placed upon it. If the grass is thin, scratch the surface wherever it can be reached, with a sharp rake, and sow on grass seed. In light soils sow Red-top; in heavy ones, Blue-grass or June-grass—two names for the same grass, and the prefix "Kentucky" is often put before Blue-grass. If there are large bare places, it may be easier to lay turf, but in all the gardening, first secure a good lawn. It may be that beds have already been made in the lawn; if so, it is well to occupy them, for the present season at least. A most effective plant for summer decoration is the Castor Oil plant, good in its common form, and better in what the seedsmen sell as *Ricinus sanguineus*. A single plant may be very effective, and if the space will allow a group may be better. They are easily raised from seeds. It is not too late to get the roots (rhizomes) of Cannas, and a most effective bed may be made of these, placing the taller kinds in the center and the lower-growing at the margin. A pleasing bed may be made by planting it with Coleus—the varieties are now almost without number, but the old velvet Coleus (*C. Verschaffeltii*), is excellent. If expense is considered, then a showy bed may be made by sowing a packet of mixed seed of *Phlox Drummondii*—bright, and lasting. If the veranda is not provided with climbers, plant a few roots of the Madeira Vine, and the seeds of some of the quick-growing climbers, such as the Hyacinth Bean, Lophospernum, Morning Glories, some of the better sorts being really beautiful. One, with a little thought given to selecting quick-growing and effective plants, even though he must begin as late as the first week in May, can soon put a new aspect upon a run down and neglected place, and make it a source of pleasure to himself and his neighbors.

Wild Flowers in the Garden.

There are many real lovers of flowers, who have the first requisite for a garden—the land—who let the surroundings of the house fall into neglect, merely because they can not afford to buy plants with which to ornament them. It is possible in most parts of the country, to make a beautiful garden without the outlay of a dollar for plants. Could the persons referred to visit European gardens, or even see European catalogues, they would find that the common plants around them are elsewhere highly valued. Aside from the trees, there are many shrubs that may find a place in the garden, and a host of herbaceous plants from which a proper selection will keep a garden gay the whole growing season. Take our common lilies for example. Aside from the far West, there are three common in the States east of the Mississippi; two of them are low, not over 3 feet high, and common in meadows, while the taller "Superb Lily," in rich swampy places, is 6 or 8 feet high, and bears a pyramid of 10 to 30 or more flowers. If one should make a collection of these native lilies, he would be surprised at the great variety they present among themselves, not only in the size and number of the flowers, but especially in their coloring. One could make a collection of these native lilies, and by careful selection find a great variety among them, so with many other native plants, which will amply repay the care that may be given to them, and one can easily stock a garden from the woods and fields. It is late now to take up most wild plants, but it is well to mark all attractive specimens for future removal. For marking shrubs for removal to the garden it is well to carry in the pocket a piece of cotton cloth, and tie a strip to any desirable plant; when the leaves have fallen the ends of the strip of cloth may be seen at a long distance, and indicate the plant.

Weeds in Lawns and Elsewhere.

We are often asked what will destroy a particular weed. We have just at hand a letter asking how to get rid of Chick-weed in a lawn. This is not often a lawn-weed, and as it thrives only in damp soils, its occurrence in a lawn shows that the soil is too wet, and that draining is the proper remedy. Much future trouble would be saved if cultivators, whether gardeners or farmers, would learn to recognize weeds in their young state. That worst of weeds, the Canada Thistle, in its infancy may be uprooted by the rake. Let it go for a year or two, and the whole force of the farm can not get rid of it. The advantage of disposing of weeds when they are young, is not fully appreciated; the rake used at the proper time, when the weeds are mere seedlings, will save much future work with the hoe. On the same principle, the use of a smoothing harrow, which is really a large rake, does good service in the corn and potato fields; destroying the weeds, while the crop plants are too firmly fixed to be disturbed by it. In the absence of this, a common light harrow, run along the rows just as the potatoes break ground, or have made but little growth, will greatly help. The growth of the most troublesome weed, is governed by the same laws which control that of the most valued plants, and there is nothing that can be applied to the soil to kill the one that will not injure the other.

The Lawn Mower.

There is one question which we can not answer; that is, "Which is the best Lawn Mower?"—Of late years we have not seen a poor one, and there are several so nearly perfect, that it can not be difficult to select one that will do good service. Lawn Mowers are now offered at such moderate prices, that one can not afford to mow a grass plot, of even moderate size, in the old way, with scythe and sickle. The mowing of the lawn is so easily done with the mower that there is danger that it may be used to excess. In spring and early summer, while the grass is growing, it can hardly be used too often, but as hot weather comes on and the growth of grass is checked, the cutting should be less frequent. It is well to bear in mind that grass is governed in its growth by the same laws that hold with all other plants. The amount of root growth depends upon that of the stems and leaves. A certain amount of cutting of the foliage tends to increase its vigor, and at the same time there will be a corresponding growth of root. But we may cut too much, especially in hot weather—and weaken both top and root growth. The only general rule that can be given is, when the grass is growing rapidly, mow often; when hot weather checks the growth, mow less frequently; do not follow any set time for mowing, but be governed by the condition of the grass and the weather.

Bare Places in Lawns.

By "Lawn" we mean any piece of grass kept solely for ornamental purposes. It may be merely a front-yard, or on large places it may include many acres. These may from some cause show thin and poor places here and there. These may be mended by several methods. If the bare places are large, the surface may be worked over with a sharp rake, to take out dead stems and roots, and then after fertilizing, be sown with grass seed of a kind similar to the rest of the lawn. If the bare patches are small, the quickest way to mend them is to lay turf. In England, a method is in use, not only for restoring bare places in established lawns, but also for starting new ones, called "inoculating." The ground being well prepared, bits of good turf (sods), about three inches square, are inserted a foot apart each way. These will take root and spread, soon covering the whole surface. In making or mending a lawn, recollect that the work is to last for years and that a good supply of fertilizing material placed in the soil will be a good investment.

The Native Laurel or Kalmia.

While we have several species, the one generally called *the* Laurel is *Kalmia latifolia*, also known in some localities as "Calico-bush," and "Mountain Laurel." It is found from Canada to Ohio, and along the mountains far southward, and varies from 3 to 20 feet in hight. The broad evergreen leaves are of themselves beautiful, and when the shrub is in flower it is very attractive. The flowers, most interesting in their structure, varying from nearly white to very dark rose color, in this respect present a great variety, and it is not to be wondered at that many have wished to bring these desirable forms into cultivation. The attempts to cultivate the Laurel have rarely been successful, and it is amusing to read the reasons given for the failures—almost always attributed to the soil. The Laurel may be transplanted with the greatest ease, if only one condition be observed—cut the shrub back so as to remove *every leaf*, leaving only bare sticks. No half-way work—leaving a few leaves on account of their beauty—will answer. "Bare poles," as the sailors say, are absolutely essential to success. If one has not the courage to cut away every leaf—then let him leave the Laurel where it grew and not transplant it, as it will fail. A shrub thus treated, if planted in any good soil, will soon make new shoots, and form a head, and in a year or two flower profusely. All attempts to transplant the Laurel in full foliage *will fail*.

The Burn Heap.

Among the small economies of a country place should be the "Burn Heap." It not only allows one to get rid of a great amount of stuff that will be worse than useless, but will pay for the slight trouble it requires in ashes. In some out of the way locality where it will be safe, have a place for everything combustible. Old shrubs, prunings of trees and vines, pea-brush, stakes, old labels, and all such accumulations must be gotten rid of. Besides these, if any weeds have been allowed to get large enough to ripen their seeds, place these there. On a mild day set fire to the heap, and carefully save the ashes. No fertilizer is more generally useful than wood-ashes, and by taking a little pains in this manner, a good supply may be obtained.

Liquid Manure.

"It simply does wonders," said a gardener to us, many years ago. That expression well describes the effects of liquid manure judiciously used. Because a little is beneficial, it will not do to conclude that there can not be too much of a good thing and make the soil sodden with it. The soil requires to have the air permeate it, and if made *wet*, even with rich liquid manure, the plants will suffer. It is well to have a tight cask of some kind, sunk in the ground, into which the soapy wash water and the chamber slops may go; these of themselves will be excellent fertilizers. The fertilizing quality may be increased by the addition

of cow manure, manure from the hen house, sheep droppings, etc. The chief care to be taken is not to have the liquid too strong. It is better to err in the direction of weakness. Twice a week is often enough to apply it, and then only to plants that are growing. In the absence of other manures, Peruvian guano, at the rate of an ounce to a gallon of water, is the best substitute. Nothing else will so increase the productiveness of a small garden as the proper use of liquid fertilizers, as above stated.

Bee Notes for May.

If the bees have wintered well, and the advice for April in respect to stimulative feeding has been heeded, the colonies are strong, and in the more southern parts of the country are preparing to swarm. Many colonies even as far north as Ohio and New York are rearing drone brood.

Queen Rearing.

It is always best to rear Queens, even though intending to increase the colonies by permitting the bees to swarm naturally. This secures queens from selected stock, and give them as soon as swarms issue, thus saving valuable time. Skilled breeders believe that, to secure the best queens, the cells should be formed and the stock reared in strong colonies, at a time when the bees are active. To obtain these queens, remove the eggs and all the uncapped brood from some strong colony, and supply its place with capped brood, and eggs from the best queen in the bee-yard. At the same time remove the queen from the colony receiving the eggs. These bees are strong in numbers, and queenless, and will commence queen-cells at once, and as they have only eggs, or larvæ just hatched, will of necessity rear their queens from the start. With the old removed queen, a new colony may be made by placing her in a new hive, with several frames of brood and adhering bees, brought, one or two each, from such colonies in the apiary as can well spare them. Great care must be taken not to carry any queen from the old hives, as this would render one colony queenless and kill one of the queens in the new hives. If there are enough spare frames to make a full sized colony, add two or three frames, and more as the colonies grow. In this case confine the space occupied by the bees by the use of a division board. This space may be enlarged as we have more frames to add.

Forming Nuclei or Young Colonies.

Ten or twelve days after the queen is removed, the queen cells will be capped, and should be taken away; if a queen emerges, the other queen-cells will be destroyed, or else the colony will swarm. Each cell should be cut out and fastened into a comb, care being taken not to press the cell; with this and another comb of brood in all stages of development, and a quart of bees, a nucleus is formed. If bees are obtained from other hives, care must be taken not to remove a queen. Enough bees can be taken from the old hives where the queen-cells have started to stock five or six nuclei. In removing the queen-cells, do not cut nearer the cell than one inch, and make the piece wedge-shape, broadest above, for convenience in fastening it in the new comb. The "Gallup" or "American" frames, which are 11½ and 12 inches square respectively, can be used for the nuclei, confining the bees by the use of division boards. If hives with large frames like the "Langstroth," or "Quinby" are employed, small hives must be made on purpose for the nuclei. These should be about six or eight inches in each of their three dimensions.

Increasing the Colonies.

After the queen has come from the cell in each nucleus, and has met the drone, which fact is assured if eggs are being laid abundantly in the small or worker cells, clip one of her wings, build up the nuclei into full colonies, by adding frames of hatching brood from other colonies as the latter can spare them. By moving back the division board, the size of the brood-chamber may be made to accommodate the growing colony. If special nucleus-hives of a smaller size than the ordinary hives are used, remove the bees and queen to the hive before the colony is built up to the full size.

Why Clip the Queen's Wings?

This saves losing colonies when the bees are permitted to swarm. Secure the queen at swarming time as she comes forth, which is easily done, as with the short wing she cannot fly, and put her into the new hive. In lieu of a queen cage a tumbler may be turned over her. Remove the old hive and set the new one in its place, and the bees will soon come back; when in the hive, remove it to a new stand and set the first hive in its old place.

SUNDRY HUMBUGS

Very often in examining a budget of humbug documents, it seems surprising that any one can be deceived by many of them. For example, there are numerous standard articles that have a well-established value, fixed by actual cost of material and manufacture, and competition has placed the price quite as low as they can be sold. Thus, if a person should offer to supply silver dollars at 60 cents each, all sensible persons would conclude at once, that the dollars were not genuine, or that they had been stolen, or that money sent to the advertiser would bring back no dollars in return.

Good Cutlery and Silver Ware

have a value nearly as well fixed as that of silver dollars, and when a concern offers these articles at half the usual price, it is safe to expect one of the above named results. Several of our readers write us about a New England concern that offers for $5 English silver-plated cutlery, which they say is sold in America of American production for $8 and $12. They give as a reason for selling at "forty per cent less than such goods are usually sold, that there is no place where cutlery can be produced so cheap for its quality as in Great Britain." (They say nothing of the custom duties which equalize the cost here)—but if these claims are so, why are the Sheffield manufacturers complaining at American competition? But it is doubtful whether there is any place where cutlery "can be produced so cheap for its quality" as in these United States, and the buyer has the name of the maker as a guarantee of its quality. As to there being anything like a difference of 40 per cent in articles of the same grade, in favor of British manufactures, and especially under the present tariff—"tell that to the marines." These remarks apply to most if not all other standard articles wherever made.

Books—"A Literary Revolution"

was promised, and a supply of books at wonderfully low prices. The concern went into the hands of a "receiver." It re-appeared later with the title of the "Useful Knowledge Publishing Company." To judge from our letters, several of our correspondents have already acquired some "useful knowledge," if they did have to pay for it.

A "Newspaper Revolution."

Cincinnati, never to be outdone in the way of remarkable enterprises, has her "Newspaper Revolution," which revolves in a remarkable manner. It shows the immense yearly profits made by publishers of papers, and kindly offers to divide *its* profits with its subscribers—which is an excellent thing to do, when the great profits are reached. It asks at first only 30c. for a year's subscription to a $1 paper—but if one will give $1 down, he can have an "original" oil painting. In all this very little is said about the paper, but much about the paintings. These are declared not to be chromos—which is possibly so much the worse for those who get them. It is gratifying to know that the paintings are mounted on "keyed stretchers," but the greatest "stretcher" is the circular itself.

More About "Ozone."

Letters still come in quantity asking about this. We have in former articles shown what the stuff is, and the falsity of the claims of its makers. In brief—these Cincinnati parties pretend to sell *Ozone*, a gas which is not known in a separate state, and which can not be sold in packages. They do not even sell the materials for making Ozone, or anything at all like it. The thing is an utter fraud, inasmuch as it sells under a false name.

COLORED FLOWERS OF SULPHUR,

which, on burning, according to directions, can not produce Ozone, but simply Sulphurous Acid (according to the new nomenclature, "Sulphurous Anhydride," S. O_2.) Whatever may be the preservative properties of these sulphur fumes, this is not the place to discuss them, but our inquiring correspondents may be sure that whatever may be possessed by sulphur colored with Lamp-black and called by the utterly false name of "Ozone," and sold at an enormous price, may be produced by sulphur bought everywhere under its proper name, and at a few cents per pound. The makers of the stuff issue

"THE OZONE BULLETIN,"

which we are informed is "published monthly," though the particular month is not given in the copy before us. This affords some curious reading. Thus we are informed that "The Preservative is perfectly harmless. A child might eat its fill of it and suffer no trouble"! Was the writer's early education neglected, and did he never have his brimstone and molasses? Shade of Mrs. Squeers—did the boys at Dotheboys Hall "suffer no trouble" after "brimstun mornin'"? It is a libel upon the well-known therapeutic powers of brimstone. But we read: "Water treated with it, converting it into Ozone liquor, may be freely drank"—but as Samuel Weller said of the Spa, what "a flavor of warm flat-irons" it must have. And again: "As a face or flesh-wash it is highly beneficial, rendering the skin soft and beautiful."—As the stuff preserves everything, why shouldn't it preserve beauty?

Frauds upon Farmers.

Last month we suggested that this was the season for special efforts to deceive cultivators, and our correspondence shows that the warning was needed. This time the "Patent Wagon Tongue man" is around. He is a well dressed chap, as these fellows always are, and has a glib tongue (not patented) of his own. He calls at a Missouri farmer's house, is very communicative, tells where he has been and how successful he was in selling his wagon tongue patent. But just now he is on his way home, can not come to that county again, and will sell the right for this county for $250. No hurry about it, but should farmer conclude to buy it, he has only to write sending his note for the amount, and he can have the right for the county. In a few days another well dressed, glib-tongued gentleman comes along. He has heard that farmer has bought the county right. He made a big thing out of selling the patent tongues in Nebraska, and would like to buy the right for that county in Missouri. He will give the farmer $400 for his right, and puts down $10 to bind the bargain. Missouri farmer does not "let on" that he has not yet bought the right; will decide in a few days; he shrewdly hurries off his note for $250 to the address given, to get the right and make a profitable trade. His purchaser never returns but the note does in due time, at the bank in the next town, where it was left for collection. A correspondent in La Salle Co., Ill., writes that the "Patent Wagon Tongue man" has been there and victimized a farmer in the vicinity to the amount of $240. This farmer *could not afford to take the American Agriculturist* when he applied to him and asked him to join a club!

A Windmill and Pump.

Here is another swindle that has been successfully pushed in Illinois. The agent agrees to put up the windmill "with all the attachments" for $150. He makes out an order for the mill, and all the separate articles, amounting in all to $275. The farmer demurs, but the agent assures him that "this is a mere matter of form; these are the company's prices, but he gives his promise that the whole shall not cost but $150." The farmer signs the order; the company send the mill with

men to put it up, and the whole charge is sometimes as high as $350. The company fall back on the order signed by the farmer, and know nothing of any promises made by the agent. We learn that some farmers will contest these bills, and all should do so. But there still exists the need of our oft-repeated caution: "FARMERS, BE CAREFUL WHAT YOU SIGN."

The "999th Subscriber."

The publisher of the "Washington Home Companion" has been honored by the Postmaster General who has given his name a place in the official list of Frauds. The 999th subscriber was to receive a fine piano. Charles K. Wilson is his name, and Charles notified a large number that *each* was *The Fortunate Nine-hundred and Ninety-nine-er*, merely suggesting that a remittance to pay the cost of boxing and expense of shipment would be acceptable. Remittances came and pianos did not go, hence the act of the Postmaster General.

"The Marriage Assurance"

schemes, under the name of "Mutual Aid" and "Mutual Benefit" Associations still send out their circulars, but the circle widens, and they now, instead of coming from Pennsylvania and other central points, originate in the far West and South. Several of our readers ask about them; one in Alabama who thinks that the "Southern Mutual Aid Association," as it gives as references some "prominent men" in Miss., ought not to be included with other similar concerns. We give little weight to such references. Some men allow their names to be used out of pure good nature, some as the quickest way to get rid of the applicant, and others still, flattered at the idea that their name is sought, out of vanity. We look upon this scheme by whoever conducted, as utterly uncalled for and open to so many abuses that it had better be let alone.

"Variety Catalogues."

We have before spoken of what, for the want of a better name we have called "*Variety Catalogues.*" The number of these is astonishing, and they are so nearly alike that they seem to be printed all at the same place. The amount of trash they offer would surprise one who had never seen them. They are mostly sent to young persons, and the articles offered are of a kind to attract the young and the ignorant. One before us professes to sell "A Great Book of Secrets or how to make $10 a day without capital;" "The Golden Key to Business Life;" "Galvanic Batteries to cure everything for 25c.!" "Fortune Teller and the Witches' Key to Lucky Dreams," and a long list of such stuff. But worse than these are numerous pictures and books which are advertised in a manner to make it appear that they are thoroughly bad. Whatever the books may be, the descriptions of them are vile; indeed their titles even will not bear repetition. We do not wonder that a father in Missouri writes with indignation at finding such stuff sent to his son....

Some Remedies.

A college student in Ohio, sends us a lot of circulars of what purports to be "*Dr. Churchill's Remedies*," and asks us to investigate the matter. It needs no investigation beyond the circulars themselves. While some others who benevolently send prescriptions, direct a lot of stuff which has no existence under the names given, these order various drugs, poisonous and otherwise, that are obtainable, but give directions for their preparation which, to those who know about such matters, are simply laughable from their absurdity. After giving directions that no one can follow, there of course comes the "nub" of the whole. These remedies must be prepared *as directed*. "Unprincipled druggists" never prepare "according to our method"—but *we* will fix the stuff all right for $3—and that is what the whole talk means. These circulars are enough to frighten a well man into the idea that he is sick. But quackery under the pretence of being scientific, is carried rather too far, when a scrap of litmus paper is sent, with directions to dip it in the urine, dry it and send it with the order.—Hear this! "This chemically prepared paper will be carefully analyzed, and all the peculiarities of your disease can be determined as fully as if you had recieved a personal examination, and medicine prepared specially adapted for your case."—We have no doubt just "as fully,"—but the analysis of a strip of paper an inch and a half long, by half an inch wide! "Whew!"

About Pensions—The Fitzgeralds.

There are Fitzgeralds and Fitzgeralds.—The genuine ones will notify us promptly, as we propose to devote space in another number of the *Agriculturist* to the Fitzgeralds, and do not wish to do any body injustice. All persons having information bearing upon this subject, whether it be in Kansas, or Washington City, or elsewhere, will please forward it immediately to us, and thereby aid us in informing our readers just how many genuine Fitzgeralds there are in the Pension Business.

About Spring House Cleaning.

Probably there is nothing in the whole routine of house-keeping that is more of a bugbear than the "spring cleaning." If, as is sometimes the case, the house is set in an uproar, the furniture moved out of doors, and all the rooms made uninhabitable at once, the operation may well be dreaded. Fortunate are those house-keepers who continue in the old-fashioned method, if colds and sickness among the children do not follow house-cleaning. Of course, where hired help is especially employed for the occasion, it is necessary to keep them occupied and to do in a day as much as possible. But, as a general thing, there is no need of the discomfort that usually accompanies House Cleaning. Of course each house-keeper will have her own views about the matter, and we can only hope to make a few helpful suggestions.

About the Stoves.

Outside of cities, the majority of houses are heated by stoves, and one of the points in most house cleaning is to take down these stoves, and not put them up again. Not only a large share of discomfort, but much sickness, if not consequent death, comes from the too early taking down of stoves. In every house in the Northern States, and the same applies farther south also, there should always be ample provision for making a fire in the living room, at *any time during the year*. Cold storms may come unexpectedly, and a fire is sometimes as necessary in August as in any other month. If stoves are used for heating, the health and comfort of the family require that there should always be at least one stove in which a fire can be made at once, at any time during the year.

Do not take Stoves Down too Soon.

Those who observe the weather are aware that, in the Northern States, we do not have what is called "settled weather" much before the middle of June, and that, each year, there is likely to be a cold storm of several days' duration between the first and the middle of that month. We have observed this matter through so many years that we feel warranted in saying to those who, in the Northern States, depend upon stoves for warming their houses, do not take down the stoves

Before the Middle of June.

When stoves are taken down, and before they are stored away for the summer, the first point should be, to make them ready to put up again. Do not leave this until the cool days of autumn, when they may be needed in a hurry, but make all needed repairs *now*. There are so many kinds that we can make but general suggestions. The weak point in all stoves is the lining, and, especially where hard coal is the fuel, this may need replacing. Do not put the stove away until the repairs are made. All of the leading patterns have a name or number, and the parties from whom a stove was bought can furnish or procure the proper lining. Some stoves have air-passages and double linings; dust and light ashes may accumulate in these, and where such exist they should be thoroughly cleaned. Then

As to the Stove Pipe,

that terror to all heads of families when stoves are to be put up. Carefully mark with chalk—lead-pencil will answer well—the parts that go together. A little care now will save much trouble in autumn. In our house-cleaning talk, we have run away to stoves, and no part of the operation is of more importance. But we would say

A Word About Cleaning Paint.

If a regular "scrubber" be employed, she may leave the painted work looking bright and fresh, but it will have been done with soap and sand. Sand should *never* be used upon painted or varnished work. Strong soft soap and sand vigorously applied, will take off a large share of the paint. To clean paint, first make a moderately strong soap suds, and also have at hand another pail of warm water, with a soft flannel cloth for each, and also a plate containing "Whiting," or "Spanish White"—to be had at all paint or drug stores. One flannel being wet with the soap-suds, dip it in the Whiting to take up a small quantity, and gently rub the painted work. The surface coating of smoke and other matter will soon be removed, then wipe the surface carefully with the other flannel wrung out from the warm water, and the painted work will look "as good as new."

Cleaning Wall Paper.

The chief soiling of wall paper, especially those kinds in which some part of the pattern is slightly raised above the general surface, is due to dust. In many cases all that can be done is, to remove the dust; this is best accomplished by taking a new broom, wrapping a cloth around it, and sweeping with it from the top downward, with long, straight strokes—not up and down. This will remove the dust, and greatly improve the appearance of the paper. Sometimes the paper will be soiled in spots, as where persons have allowed their heads to rest against it. In such cases it is well to try a piece of stale bread, from which the crust has been removed, using it upon the spots as if it were a piece of India Rubber. At house cleaning time it is well to have an eye to, and

Close Up All Cracks and Crevices,

whether in the floor, or between that and the base board, where insects may harbor, as well as larger ones in closets through which mice may enter. For cracks, common hard soap, which is usually soft enough for the purpose, may be used to fill them. It is usually soft enough to be pressed with the fingers into crevices, and no insect will venture to make its way through it. For larger holes, through which mice may come, Plaster of Paris, mixed with water to the thickness of batter, and quickly applied, will soon set, and stop the opening. Thin sheet-tin, from old fruit cans, may be tacked over the larger holes. In the spring cleaning we must consider

The Question of Moths.

The common Clothes Moth was formerly the only one that troubled housekeepers, but of late years the "Buffalo" or "Carpet Moth," has in many localities come to plague them. To keep woollens and furs from moths, two things are to be observed—1st, to see that none are in the articles when they are put away, and 2d, to put them where the parent moth can not enter. Tin cases, soldered tight, whiskey barrels headed so that not even a liquid can get in or out, have been used to keep out moths. A piece of strong brown paper, without a hole through which even a large pin can enter, is just as good. Put the articles in a close box, and cover every joint with paper, or resort to whatever will be a complete covering. A wrapper of common cotton cloth, so put around and secured, is often used. Wherever a knitting needle will pass, the parent moth can enter; carefully exclude the insect, and the articles will be safe. As to the

Buffalo or Carpet Moth.

This fortunately exists in but a few localities. No better remedy than that we gave a year or two ago has been offered.—Wet a folded sheet or other cloth, lay it over the place near the edge of the carpet, and use several hot flat-irons, moving them about from time to time so as to send the steam down through the carpet and into all the cracks of the floor, and it will kill the moths. Where this has been properly tried it has been effective.

Fig. 1.—FRONT ELEVATION....[WEST.]

Country House, Costing $3,000 to $4,000.

Actual Cost, as Here Described, $3,351.

CLASS III.—FIRST PRIZE—BY MRS. WM. H. BURR, REDDING RIDGE, CONN.

[In selecting this plan from a great number in Class III., the judges "guessed" that a "housekeeper" had had more to do with the design and arrangement than an architect, though the hand writing gave them no such intimation, and they were pleasantly surprised when informed that, on opening the envelope, the designating motto was an actual "Farmer's Wife," and not an appropriation of that title by one of the sterner sex, as they had supposed. We learn that this house was built in 1879, but the planning, arrangement, materials to be used, and most economical construction, had been talked over, and much thought about, for many years previous, and no doubt with a great deal of observation and study of many other dwellings to get any new hints and suggestions. The judging committee's notes on this plan read: "A very roomy house, with plenty of closets, large attic, bath-room, hot and cold water in first and second stories; every room, even to the attic, has an adjoining chimney which will admit a stove-pipe. No water-closet shown in bath-room, though one shown in the wood-shed is very convenient. In construction, the design omits to show how the rear main-house walls are supported; piers or posts are probably intended. The estimates appear correct, though to finish up with such a variety of hard-woods, would seem to exceed the estimates, in most localities." [It will be noted below that, except the walnut, they were cut on the farm.—ED.] "The roofs are all shingled; tin would often be preferred, and in many localities be cheaper...." In the following descriptions, we do not, as usual, arrange them systematically, but follow the order of the notes accompanying the plan, with such emendations and condensing as seemed desirable.—ED.]:

After all our long study on the subject, we decided upon this plan as being the most economical in form of building, with the rooms just where we wanted them, and large enough to meet the requirements of our own or any ordinary family. The rooms in constant use are all on one floor—quite a necessity when a woman must have the care of and *do* much of the work in a farm house. A bedroom on this floor is essential when one has little children. The house fronts west, the sitting and bedroom being on the south side. We think the house has a pleasing and substantial looking exterior. The gables are sheathed and battened. Probably no two persons would fancy exactly the same style of finish, forms of brackets, etc. The drawings are not by a skilled artist, but are as good as I can make them, with the little time I have to spare. [Mrs. Burr, at our request, sent for the use of the artist cut paper patterns of some of the mouldings and brackets, which she could not exactly represent in the pencil sketch.—ED.] The outside painting is in two colors, the blinds being still another color. White lead and linseed oil were used, with shading mixtures added for the tinting.

The roofs are all shingled; some may prefer tin over the Verandas and Bay-windows; the expense is about the same. The frame was first sheathed with boards, then building paper tacked on before the clap-boards were added. The window frames and cap mouldings were made at a factory. All windows have cords and weights.

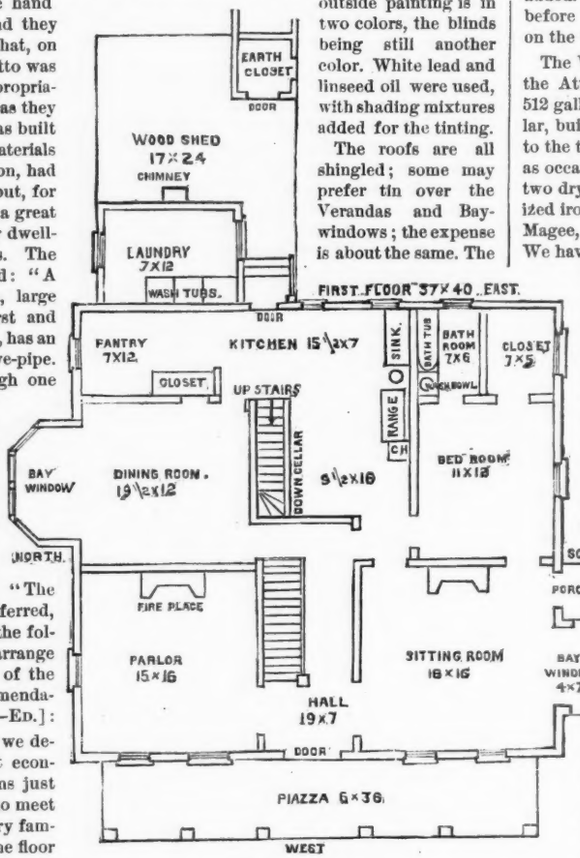


Fig. 2.—FIRST STORY.

They are two-light, of double French glass. Those on the rear are four-light, and have thinner glass. The head-light over the front door has stained glass.——The house is finished throughout with hard-wood, and is what they call "polished." All the pores of the wood were filled by hard rubbing with "Wheeler's Patent Filling," a preparation of ground silica found in our markets, then varnished with "Crockett's Preservative." These make no change in the natural color of the wood, and it is as easy to clean as glass. I think few people are aware of the beauty of our native woods, and the farmer who has them growing can finish more cheaply with them than with pine. With care in sawing, using the outside of the log, and drying them carefully under cover that they may not be stained, a grain of great beauty is obtained. The outside doors are of white oak, 2¼ inches thick, the front one being handsomely made. The others are 6-panel, most of them being 2 inches thick, some only 1¼ inch. Where the woods are of different kinds in adjoining rooms, the doors are made to match the rooms by gluing together half thicknesses of the two kinds of wood. We used White Oak, Maple, Ash, Butternut, Chestnut, Black Birch, and Black Walnut; (the Walnut we bought).

The Bay-windows and those in the parlor and sitting-room are panelled. The Bath Room is wainscotted with Ash and Butternut. The Kitchen is also wainscotted [that is, the lower portion of the walls are wood-work, instead of mortar]. The kitchen floor is 3-inch wide White Oak, grooved-and-tongued. We oil it twice a year. On the rest of the First Story the flooring is of 4¼-inch wide pine, grooved-and-tongued. The Second Story and Attic floors are 9-inch wide pine, selected from the sheathing boards, which were of extra quality. The shingles are laid on chestnut lath. The plastering on the First and Second Stories is two coats of brown mortar, with a third hard-finish coat added. The walls and ceilings need to be finished before the casings are put on, as any lime getting on the wood before it is polished, will stain it.

The Water from the roof enters a Tank built in the Attic, of pine plank, lined with lead, holding 512 gallons. From a cistern just outside the cellar, built of stone and cemented, water is thrown to the tank with a force-pump placed in the cellar, as occasion requires. Our supply has not failed in two dry summers. The Water Boiler is of galvanized iron, holding 53 gallons. The Range is a 9-inch Magee, with water-back, not an "elevated" one. We have always burned wood in it, and with good success. The Laundry has three stationary wash-tubs, supplied with hot and cold water. In this room we have taken no precaution against frost, there being only one brown coat of mortar. There are faucets in the cellar, by which we turn the water off as soon as we have finished washing, so there is no danger of freezing. This room also takes much rough work from the kitchen. Directly over the Range is a register, attached to a tin pipe running up to the tank-room above. This was put in to keep the tank-room from freezing, but it also acts as the most perfect ventilator I have ever seen. By pulling down one of the windows from the top in the tank-room, all smoke and steam from the range in cooking is almost instantly carried off through this pipe. We have had no trouble from freezing of the water, but you will see that the pipes are centrally situated away from outside frost, and all the rooms are comfortably warm at all times. The Tank-room is 8 feet high.

The Cellar wall (fig. 4) is of rough stone, laid in mortar, 2 feet thick, 8 feet high. The division walls are of concrete, 12 inches thick. The cool cellar is shut off from the rest by a division wall, and has a window at the north. The Smoke-room is built between the chimney and the brick pier that supports the fire-place above. The back is of concrete, with a door in front lined with sheet iron. A large

flat stone separates the large iron pot holding the smoke-making fire from the part where hams are hung. By means of a loose brick at the top, opening into the chimney, we can adjust the draft at pleasure. There are hooks for 20 hams. The Furnace room was purposely placed in the north-west corner, as from this direction most of our winter winds blow, and you can not throw much heat from a furnace against the wind. This room is lathed and plastered and fire-proof. The furnace might appropriately be called the farmer's furnace. It is simple in construction, economical in use, and perfect in its heating qualities. All through last winter, as severe a one as we ever had, the house was heated from cellar to attic so that flowers would flourish in any room, and we could regulate the heat to within 4 degrees, the 24 hours round, week in and out. All farmers know that a large item of expense in burning wood is cutting it into short stove lengths. In this furnace it is burned as it comes from the woods, in 4 feet lengths. On damp, rainy days in summer we throw in a little dry stuff, and all chilliness is taken from the air in ten minutes' time. We estimated last winter (1880–1) that we burned not more than 8 cords of wood, and at the rate we have burned since last October we shall not use more than half that quantity this season. Friends from the city visiting us last winter whose houses were heated by expensive steam heaters pronounced our house the most perfectly heated house they were ever in. The whole expense of furnace, pipes and registers, did not exceed $150.00. In very cold weather it is only replenished twice in 24 hours.—The cellar windows are protected outside by iron bars. The cellar steps are of granite got out on the farm, 6 feet long; all other steps are of the same material. The front ones are 8 feet long, with side pieces 9 inches wide, 2½ feet high, and 3 feet long. The south one forming the floor of the porch is 4½ by 6 feet, the steps being 6 feet long. The rear porches have stones 2 by 4 feet, the steps being 4 feet long. All are cut and faced. The underpinning is 2 feet high, cut rough face. [Outside cellar entrance is not shown.]

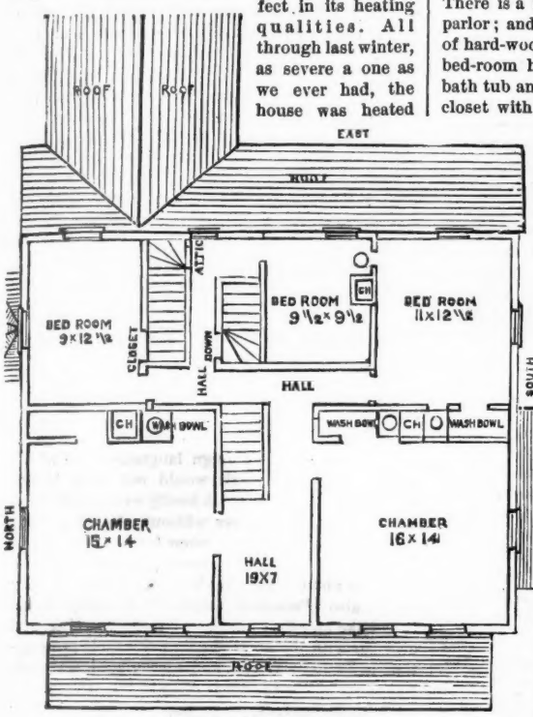


Fig. 3.—SECOND STORY.

First Floor (fig. 2).—Hight of ceiling, 10 feet when finished. On this floor we planned to save as many steps as possible. The kitchen is centrally located. The outside door is protected by the projecting roof of the wood shed. There are doors also to most other rooms and to the back stairs and cellar stairs. The sink is supplied with hot and cold water. The pantry is well supplied with drawers and cupboards.—The Dining Room has more length than breadth, and has a good closet and two cupboards with glass doors [not shown in plan], one each side the chimney, filling the space made by the parlor mantel. Underneath these cupboards is a hard-wood mantel on brackets [not shown]. A door opens from the dining room into the front hall.—The Sitting Room and Parlor have double doors connected by a wide hall, so that these rooms can be thrown together when desired. There is a marbleized slate mantel in the parlor; and in the sitting room a fire-place of hard-wood with hard-wood mantel. The bed-room has a bath-room adjoining, with bath tub and marble wash basin; also large closet with window. There are speaking tubes running to the servants' rooms above in the Attic.

Second Story (fig. 3). Hight 9 feet. There are 5 bed-rooms, and the front hall can be used as a sleeping room in an emergency, cutting it off with curtains. A door [not shown] connects the front and back hall. Three rooms are supplied with marble wash basins and hot and cold water. These rooms have also hard-wood mantels set on brackets by chimneys.

The Attic (fig. 5), has two sleeping rooms cheaply finished, also tank-room and dark closet for storing bedding, etc., with large open attic for play room, or drying clothes on rainy days.

Construction.—The first floor timbers are Chestnut, hewed one side, the bark taken from the rest, making a foundation as firm as the ground. The rest of the frame is of spruce, bought at a lumber yard. All the wood used in finishing was sawed and planed and cut into proper lengths at a Mill; also all the mouldings struck and the brackets sawed for both outside and inside work. All this is in one bill. All other wood-work was done by carpenters. The cellar was dug and stoned and the steps laid by contract, by those making that their business. The steps and underpinning were got out some time before. We have reckoned into the expense what they cost at that time. Building the chimneys and plastering were done by two good masons, we doing the tending by farm hands, but this is all reckoned in; also all lime, cement, brick, lathing, and every little thing used. For the timber and lumber used from the farm, in finishing, I have reckoned what my husband says is a large allowance, and what it could now be bought for, delivered here. All bills are given just as they were rendered to us. Probably an advance of 20 per cent on a considerable portion of the materials and on the labor, would be ample to cover the recent advance in prices. We put down as a liberal allowance, $585.00, which would raise the present total cost to $3,936.00. This is from a farmer's standpoint. An account was kept at the time of every little expenditure, which is added under the head we thought it belonged to. I have given details of many little things, but these make one harmonious whole. Any one can get in the large things. We believe in making the farm itself contribute all it can, and I am proud of our stone-work, inside wood-work, and the furnace built under my husband's personal direction. [We do not understand the construction of the home-made furnace which "burns wood four feet long." Will send for a description of it, and if important will give engraving and further accounts of it hereafter. The location of the only Bath-room is objectionable, in that it can not be reached by occupants of the second story, and only through the first story bed-room. ED]

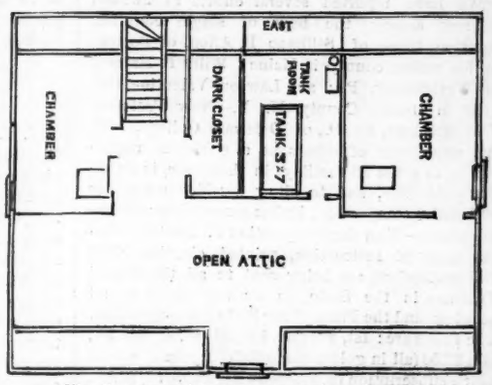


Fig. 5.—ATTIC (REDUCED SCALE)....[WEST.]

The Wood Shed (fig. 2) is 17 by 24 feet, out of which the laundry is taken. The door from the kitchen is protected by its roof, saving a separate piazza. Having the fuel close at hand and dry, is convenient at all seasons. The chimney for the laundry is built mostly of cement pipe.—The house stands somewhat higher than the surrounding ground surface. The waste water and that from the cistern overflow is carried off through a pipe in the cellar, into cement drain pipes, closely cemented at joints. [There should of course be a trap, or depressed bend in this, to prevent the return of noxious gasses.—ED.] I find that my sketch has not placed the front windows quite as far apart as they really are. In drawing the plans I have measured everything about the house, and allowed six inches for all partition walls. The veranda posts should be directly at the end of the 8-feet steps. There are no blinds on the south bay-windows, as we intend to add inside ones of hard-wood. The "elevation" does not do justice to the house, but it is the best I can do; I find I undertook a pretty big job for a busy house-wife.

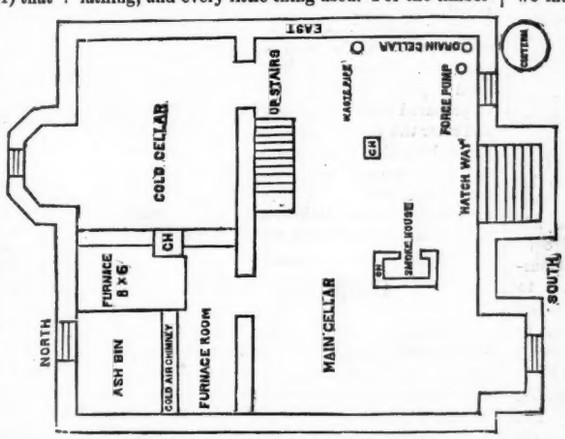


Fig. 4.—BASEMENT (REDUCED SCALE).

Prices of Material Used:—Timber $13 per 1,000 feet. Boards for cornices, trimmings, etc., $24 per 1,000 ft. Sheathing boards (from which the best were selected for upper floors), $16 per 1,000 feet; other flooring, $24 per 1,000 feet. Floor planks, $35 per 1,000 feet. Clap-board siding, $30. Shingles, $4.25 per 1,000. Lath, $1.80 per 1,000. Lime, $1.20 per bbl. (same price now). Hardware, bought in 1879, can be bought for about the same now.

The Total Cost is shown in the bills paid, viz:

Digging and stoning cellar, laying underpinning and setting steps	$300.00
Plumbing, including all tin work, gutters, valleys, leaders, etc.	250.00
General Lumber bill	548.66
5,000 feet finishing lumber @ $25	125.00
Timber, and Shingling Lath	50.00
All Hardware, including nails, window weights, etc.	123.16
Building Paper	8.33
Plastering, building chimneys, bricks, lime, lath, and lathing, etc.	250.00
Hand Railing and Balusters	30.00
Marbleized Slate Mantel, 4 Ceiling Center Pieces, and brackets	30.00
Making 32 Doors at Factory	54.35
35 Window frames and Cap Mouldings	59.58
Window Sash and Glass	100.93
Striking Mouldings, sawing and planing lumber, brackets, etc.	87.44
4 Finials, $8; Walnut Mouldings, $11.80	14.80
Blinds, delivered unpainted	48.70
Polishing inside wood-work	150.00
Painting (mainly outside), two coats	150.00
Carpenter's Bill	535.00
Carting, $100; Furnace and Fixings, $150	250.00
Total bills paid	$3,351.00
If we add for possibly increased prices in 1882	585.00
It would make present cost	$3,936.00

Delaware Boys at Corn-Raising.

A Plan Worthy of Adoption Everywhere.

We have reported several efforts to awaken interest among the boys of single counties, such as those of Stillman B. Allen, of Boston, in his native county in Maine; Willis P. Hazard, in Westchester, Pa.; and Lawson Valentine, this year, in Orange County, N. Y.—Now Professor J. A. Reinhart, Ph. D., of Delaware College, with the experience of others as a guide, is undertaking to enlist all the Boys in that State, in a similar enterprise, and to allow a wider range for successful competition, he has arranged for *Thirty-five prizes.*—With the co-operation of the State Department of Instruction, printed circulars, with full particulars, are being sent to all the School Teachers in the State, to be announced to all scholars, and the Press of the State is co-operating. The Prizes are: 1st, $20; 2d, $10; 3d, $7.50; 4th, $5; 5th, $2.50 (all in gold); 6th to 25th (20 prizes) each a year's subscription to *American Agriculturist*, $1.50; 26th to 35th (10 prizes), Books worth $1, or more each, to be selected by the winners from a list to be furnished to them. Every successful competitor is also to receive a beautiful CERTIFICATE from the College, suitable for framing, as an honorable and permanent record of his work. These thirty-five are the "GENERAL DELAWARE COLLEGE PRIZES," and are limited to boys under 18.—Additional to these are the "DEAN DELAWARE COLLEGE PRIZES," the Hon. Wm. Dean having authorized the College to offer cash prizes of $30, $20, and $10, limited to young men under 21, and requiring *half-acre* plots. (If the first of the prizes be won by any member of Newark Grange, $20 will be added by that Association, making it $50.)—Full printed particulars about all the Prizes can be obtained by addressing Prof. J. A. Reinhart, Newark, Del. As an example to others elsewhere, we give a brief outline of the plan—not having space for the whole:

Any Boy, residing in the State, not having reached his 18th birthday prior to application, can become a competitor by sending his name and address to Prof. Reinhart, before May 15th.—The competing plot must contain exactly one quarter acre (40 square rods, or 10,890 square feet). The shape of the plot is left to the convenience of the competitor. No rows or hills are to be nearer to the border than 12 inches (otherwise some nutriment might be drawn through the roots from adjacent land). Under this limitation there will be the least waste border in the plot nearest square. 5 by 8 rods is a quarter acre, 6¼ rods by 6 rods and 2¼ feet, or 100 feet wide by 108 $^{9}/_{10}$ feet long, make quarter-acre plots very nearly).—The ground may be plowed and harrowed for them, but all other work: fertilizing, planting, cultivating, topping if done, and harvesting, must be done by each competitor himself. He is to make his own selection of the variety of corn, the fertilizers, mode of culture, in hills or drills, frequency of hoeing or cultivating, etc. Of course he will gather all the information he can by reading, inquiry, etc. This attention, investigation, and observation, will be worth far more than any prize, to each and every boy who enters the contest, and we advise every Delaware farmer having boys of 8 to 18 years old, to allot to each boy a plot and encourage him to join the company. It will be worth to each, in the future, far more than to give him an acre of land outright. We suggest, also, to promise each boy a certain part of the corn grown—*at least* all he shall produce over an ordinary crop.

The corn is to be gathered and measured within three days of October 18, before or after. The measuring of land and crop, harvesting, etc., are to be under the supervision of three disinterested practical farmers of the vicinity, to be named or approved by Prof. Reinhart. The corn is to be weighed on the cob, and 75 lbs. reckoned as a bushel. Blanks will be furnished, which are to be filled out with all particulars, and sent to the college by November 1, signed by the competitor and the local Committee of three.—75 lbs. of the average ears are to be sent to the Agricultural Department of the College, or to the R. R. Depot in Newark, Del. The exhibition of the corn, and the time of awarding Prizes, will be duly announced. The Money Prizes will be awarded to no plot yielding less than 20 bushels (80 bushels per acre); and the other prizes to no plot yielding less than 17½ bushels (70 bushels per acre).

Making the Crows Useful.

W. S. Morgan, Somerset Co., Pa., in view of the fact that the corn-planting season is at hand, gives his experience, which we commend to those who look upon the crow as an enemy. He says: "For the past five seasons, I have, just before I expected my corn to come up, sowed on the field about a a quart of corn to each acre, and repeated the operation as often as necessary, until the corn was so large that the crows could not pull it up. If the corn is soaked until tender, they prefer picking what they want to eat from the surface rather than to pull the young plants to get it. The cost of the corn thus sown is but a trifle; as a result I have a great number of crows almost constantly on my corn field, and after they have been satisfied with corn they will still pick up all the insects, grubs, and cut worms they can find, *as a dessert.* In raising fifty acres of corn since adopting this plan, I have not lost a hundred stalks by crows and cut worms combined."

Climbers and their Supports.

The use of climbing plants is chiefly confined to verandas and porches, and occasionally to cover an unsightly fence. They may often be used elsewhere with pleasing effect, and probably would be more frequent were it not for the trouble of providing suitable supports. The old style with the delicate and beautiful Cypress Vine, is to place a pole 8 or 10 feet high, and run strings from wooden pins placed in a circle around it to the top of the pole. This, when covered with vines makes a pretty pyramid, but it is so formal that one does not care for more than one in a garden. In providing supports, whatever else they may be, they should be strong. By the end of summer they are covered with a great weight of foliage, and the winds are apt to make a wreck of them just when the plants are at their best. Common poles will become rotten by the end of summer. If locust can be had, a piece of this, no matter if crooked, can be placed in the ground and a pole of any kind spiked to it. In some places, to make a partial screen, poles may be set 10 feet or so apart, and a strong cord run in festoons from one to the other. When such a support is well covered by climbers, it is very pleasing. For low climbers, such as the hybrid varieties of Clematis, a young red cedar is excellent. This should have its branches cut to form a pyramid and may be used with the bark on. If prepared before hand, the bark may be removed, and after the wood is seasoned, it may be painted some brownish green color. Such supports will last for years, and when covered will not have a formal appearance. A support of this kind, covered with Clematis Jackmannii, in the garden of a neighboring friend, was worth going far to see.

Compacting the Soil.

"How is it," once asked a young friend of us, "that every cutting you touch will grow, while only a small part of mine succeed?"—We were both amateur gardeners and as neighbors, indulged in a friendly rivalry. We gave him the secret of our "touch," which was, to always press the soil firmly around the cuttings; after this he had no cause to complain of failure. This matter of bringing the soil in close contact not only with cuttings, but with rooted plants and seeds, is of the greatest importance, and its neglect is a frequent source of failure. If the soil is left loosely around a cutting or around a seed, the minute root in either case, as it pushes, may fail to come in contact with the needed moist soil and perish for the want of it. When ripe wood cuttings, such as those of the currant are set out in the open ground, and one lot have the earth thoroughly pressed against their lower portion, even pounded down to make sure, every one will grow. If this is neglected more or less will fail. So in setting out plants, such as those of cabbage, celery, etc. The market gardeners make sure that the soil shall be brought close to the roots, by going along the row and pressing it firmly to the plant with the feet. In an article we printed a few years ago, Mr. Peter Henderson showed that success with raising his crop of celery plants was due to the fact that, after sowing the seed he had the whole surface of the soil of the bed well patted down with the back of the spade. The end is accomplished on a large scale by the use of a roller, but in small beds the spade is an excellent substitute. In setting out trees or shrubs, the more carefully the soil is filled in and worked in among the roots, and firmly pressed—not stamped down, with the foot, the greater the chances of success. Even in laying turf or sods, the roots of the grass should be brought in close contact with the soil by the use of a "beater," a piece of heavy plank with a handle, or by beating down with the back of the spade.

Protest against Using "Foreign Names."

Every now and then we receive a protest of which the following, just at hand, is a fair sample: "I do wish OUR *American Agriculturist*, which aims to supply information for the common people, who are not educated in foreign languages, and which usually does it so well, would not cling to the use of foreign names. It hardly ever speaks of a common plant or flower without attaching to it (generally in parenthesis), some foreign name, often a jaw-breaking one. For example, in describing the common plant "Burning Bush," on page 21, why call it also '*Euonymus latifolius*'? It always seems to me like an effort to show off one's learning, and on a par with the doctors who write their prescription in Latin or Greek, and hieroglyphics, though I suppose in this case it is done to keep the knowledge to themselves, or perhaps to mystify their patients into paying for much learning, and paying a large price for a simple medicine. Why only yesterday a Doctor was called to see a member of my family suffering from bowel complaint—and he gave us a prescription to the druggist which read: ℞ *Rubus villosus Rad. decoct.* ℥ viii.—*Scrib. coch. mag. aa hora.*'—Out of curiosity, I asked the drug clerk what this meant, and as near as I understood it, in plain English it would read: 'Send 8 ounces of Blackberry-root tea or decoction and write: take a tablespoonful each hour'...."

A little examination will show that the above criticism has no just foundation. There are a number of intelligent civilized nations who speak and write entirely different languages, and each one of which is making advances in useful knowledge and science—notably the English, German, French, Italian, and Spanish. And what one learns or discovers soon becomes available to all the others. But the words in describing even the most common things, are scarcely ever the same in any two languages. For example what we call the "potato," the German calls "kartoffel," and the Frenchman calls "pomme de terre."—It is therefore of great importance to have and use some *one* language only among all civilized nations, for the description of objects, scientific terms, plants, medicines, diseases, etc., so that all will get the same idea from the words used. Take this illustration: When on a health tour in Europe our supply of a particular medicine of great importance was exhausted. But having the home physician's prescriptions written out in the scientific language used by physicians the world over, we laid it on the table of an Italian druggist in Rome who did not know a word of our language. He, without a moment's hesitation, put up the medicine just as it was done at home. The same thing occurred in Berlin and in Paris.

The discoveries in Germany, in Italy, in France, etc.—in botany, in medicine, in any branch of

science—are at once available to us, because we use the same scientific terms in description. Even in different parts of our own country, very different names are given to the most common medicinal plants; but the educated physicians, by the use of fixed scientific terms, and the signs denoting quantities, know that any competent druggist from Maine to California will understand exactly what is to be done with a prescription. In fact it would be positively dangerous to do differently. Even in the same city, different druggists would often put up a different mixture, if the common, variable and changing names were used in prescriptions.

But every living language, in daily use, is constantly undergoing changes in meaning or shades of meaning, and there are many words that have a very different significance in this country and in England, even in different sections of our own country. Suppose all the civilized nations should agree to make the English, or the French, or the German, a common language for describing things. There would have to be an international congress every few years to revise the nomenclature.—But the Latin and Greek languages as they were formerly used and fixed in the older books, are different from any now spoken or written; they are called dead languages; but they were full, comprehensive, and expressive, and do not change from century to century. So by general consent and custom, all civilized nations now use the Latin or Greek words for all matters common to all. When we describe a plant or flower, and add its scientific name, every other nation knows to what we refer, and when we read of new discoveries in foreign journals we know just what is meant.

The terms adopted usually imply some quality. Thus: "Euonymus" is the name applied to several plants having some properties in common. If we see the words Euonymus *latifolia*, we know at once that the Latin word *latus* means "broad," and that *folium* means a leaf. So *Euonymus latifolius* means the Euonymus that has broad leaves. And the German, or French, or Italian reader knows the same thing. And so of all other names of plants, of diseases, etc.—It is only a matter of becoming accustomed to words. Our readers will find little more difficulty in learning to call a plant Euonymus instead of "Burning Bush." Indeed this last word is often applied to quite different plants that have red leaves or berries.

What Kinds of Vegetables and Flowers to Choose.

We have before us a list of **2,316** different varieties of desirable flowers, and almost as large a list of vegetables, etc. The inexperienced, wanting only a few varieties in a garden or flower bed, is bewildered, and puzzled what to select. To help such, we append a few leading kinds, which, if not everywhere the best, have the merit of being generally good, and any one entirely unskilled, and having no trustworthy adviser at hand, may safely select any of the following

Garden Vegetables.

BEANS: (Bush) Valentine, Mohawk, Golden Wax; (Pole) Lima, Giant Wax.

BEETS: Egyptian, Bassano, Long Dark Blood; (Mangels) Kinver's Globe.

CABBAGE: For early, Wakefield; for medium, Winningstadt; for late, Flat Dutch, and Drumhead Savoy.

CAULIFLOWER: Early Snowball; Paris, for late.

CELERY: Golden Dwarf, Giant White.

CORN, SWEET: For early, Crosby's Early; medium, Triumph, Egyptian; late, Stowell's Evergreen.

CUCUMBER: Early Russian; later, White Spine.

EGG PLANT: N. Y. Improved Purple, Black Pekin.

LETTUCE: Early Simpson, Tennis Ball; and later, Black Simpson, Hanson.

MELONS: (Musk) Ward's Nectar, Christiana, Nutmeg, Cassaba; (Water) Mountain Sweet, Gipsey.

ONIONS: Red Globe, White Globe, Yellow Danvers.

PARSLEY: New Fern Leaf, Extra Moss Curled.

PARSNIPS: Long Smooth, Short Round.

PEAS: For early, American Wonder, Alpha; later main crop, Champion of England.

PEPPER: Large Bell, Cayenne.

RADISH: French Breakfast; later, Long Scarlet.

SQUASH: Early Summer Crook Neck; later, Hubbard, Boston Marrow.

TURNIPS: Early Dutch; later, Red-top Strap Leaf; winter, Long White French.

TOMATOES: Acme, Trophy, Livingston's Perfection.

Garden Flowers.

AGERATUM: Imperial Dwarf; Album.

ALYSSUM (Candy-tuft): Sweet; Wierzbeckii.

AMARANTH: Princess of Wales; Tricolor.

ANTIRRHINUM (Snap-dragon): Caryophylloides.

ASTERS: Giant Emperor; Washington; Victoria.

BALSAMS: Solferino; White Perfection.

CALCEOLARIA: Hybrida.

CALENDULA (Marigold): Meteor.

CAMPANULA (Canterbury Bells): for hardy perennial, the Pyramidalis; for hardy annual, the Pentagonia.

CANDYTUFT: White; Carter's New Carmine.

CARNATION (Pinks): Grenadine.

CELOSIA (Cockscomb): Japonica; Glasgow.

CENTAUREA: Americana; Candidissima.

CHRYSANTHEMUM: Tricolor; Japonicum.

COBÆA SCANDENS.

CONVOLVULUS (Morning Glory): Striped; Crimson.

CYPRESS VINE: Rose; Scarlet.

DIGITALIS (Foxglove): Alba; Purpurea.

FORGET-ME-NOT: Mixed.

GILIA: Nivalis; Tricolor.

GLOBE AMARANTH: Golden Yellow; White.

GOURDS: Bottle; Hercules' Club; Lemon.

HELICHRYSUM ("Everlasting"): mixed.

HONESTY: Purple.

LARKSPUR: Bismarck; Emperor.

LOBELIA: Alba; Bicolor.

MIGNONETTE: Golden Queen; Old Sweet.

MIMULUS (Monkey Flower): Cardinalis; Duplex.

NASTURTIUM: Crimson; Rose.

PANSY (Heart's-Ease): Snow Queen; Emp. William.

PEAS (Sweet): Violet Queen; Butterfly.

PETUNIA: Countess of Ellesmere; choice mixed.

PHLOX DRUMMONDII: Coccinea; Victoria; mixed.

POPPY: Carnation.

PORTULACA: Aurea; Splendens; mixed.

STOCKS (annual): Large-flowering; Tree; the mixed.

THUNBERGIA: Alba; Aurantiaca.

WHITLAVIA: Grandiflora (blue); Alba (white).

XERANTHEMUM (Everlasting): Album; Cæruleum.

ZINNIA: Coccinea; Pumila; the mixed.

The Tuberose and Gladiolus.

These bulbs have been produced of late years in such quantities that they are now sold at prices which bring them within the reach of all. The Tuberose, so valued for its fragrance, is often injured by being planted too early. The first of the present month is soon enough to start the bulbs; they may be planted in pots or boxes of soil, and placed in the green-house, or in a warm room, and they will be sufficiently advanced to be planted in the open ground by the last of the month or the early part of June. They should have a warm rich spot, and the flower stalk, as it developes, be supported by a slender stake. The Gladiolus, on the other hand, is almost hardy. It affords a wide range of colors, and a bed of them is very showy. Mixed, unnamed bulbs, can be bought at a much less price than the named kinds. They should be planted a foot apart with the top of the bulb at least two inches below the surface. It is well to plant a portion of the bulbs every two weeks until the first half of June to insure a continuous bloom. It is well to stake the flower stalks to keep them from being broken down by the wind just as they are in their prime.

Strawberries.—When to Plant.

The above question is often asked, and its answer must depend upon circumstances. One fact about the strawberry plant should be known, and this will enable each one to decide for himself. The plants that are sent out by nurserymen are those that were formed last year by the runners from old plants taking root in the soil of the bed. If these are taken up in the usual way and planted in a new bed—it may be after the lapse of several days—they require a whole season to get established and become sufficiently strong to bear a crop. If these plants are set this spring they will bear a crop next spring; if such plants are set next autumn, they will require all of next season to grow in, and while they may produce here and there a few berries, they will give no real crop until the following year. Growers of fruit for market set a share of their plants in the fall, because they then have leisure, and the ground is in excellent condition. If the plants are made to strike root in pots, these in early autumn may be planted in beds without any disturbance of their roots and will give a fair crop next spring. Such plants are more expensive than others, and if a crop of fruit is wanted next spring, it is better to set out the plants now. Making the rows two feet apart, and setting the plants one foot apart in the row, as a general rule, is best, but there may be reasons for putting them further apart, as where land is plenty, and the horse cultivator is to be used.

Notes on the House Plans.

No other single topic engages the attention and interest of so many readers as the House Plans and Notes upon them.—Not only those who contemplate building soon, but almost every house-keeper studies the arrangements and conveniences, notes items in which her own is superior, and gathers suggestions for improvements—and the other head of the household is similarly interested, though not always to the same degree. The Editor of a prominent Western Journal, in a private letter, writes:...."Your prize house plans, and familiar talks and explanations, are contributing very greatly towards improving the homes of the country, new and old...." Mrs. Woodruff's suggestions on "Conveniences in Houses," on page 210 of this paper, may be read with profit by all house owners, house builders, and by architects also.

Any simple arrangement, or re-arrangement, of kitchens, closets, pantries, sinks, position of cook stoves, stairs, doors, or otherwise, that will save only a hundred steps a day—one or more of which may be easily done in nine-tenths of all the ordinary houses in existence, and may be readily provided for in building new ones—will amount to a very great saving of time and strength in the course of one year even. Ten needless steps an hour, or a hundred a day, amounts to thirty-six thousand five hundred steps a year, equivalent to a useless journey of over 150 miles on foot, or 1,500 miles in ten years, all of which may be avoided by a trifle of forethought in planning. American house-keepers, and especially farmers and mechanics' wives, have quite enough of necessary exercise, without incurring that which reading and a little forethought would save.

CORRECTION.—In the first floor plan given last month, a mistake of the draughtsman figured the parlor 10 by 15 feet. A glance at the form and dimensions of the room, as sketched, or an application of the scale, would show that it should be 15 by 15 feet.—The contributor of the "Mount Union" plan, noted in March (p. 95), is Mr. A. F. Hillier (not Hilley).

Grafts and Stocks.—We advise cutting cions in the fall rather than early spring. In part to insure their being perfectly dormant, and in part that they may be in a more vigorous condition. A shoot exposed to the very severe winter, if it remains on the tree, may not show that the cold weather has had any perceptible effect upon it; if, however, at the end of such a winter it is cut and used as a graft, the shoot will very likely give evidence that its vitality has been weakened. Two-year-old seedlings are not better than some year-old for stocks for root-grafting, and even are not regarded as good, they are not worked as readily as younger ones, and require more room in storing.

The Children's Bed.—In making preparations in the flower garden, do not forget the children's bed. If they are old enough to take care of it themselves, all the better, but let there be a place filled with common and pleasing flowers, where they can go and pluck at will, and not be in fear of the injunction, "don't touch."

The Use of Brains in Farming.

How Soils and Crops Differ.—Soil-tests for determining the Needs of Plant-food, and the best Materials for Supplying them.

BY PROF. W. O. ATWATER.

What is the best fertilizer for corn, for potatoes, for cotton? Such questions will always be asked, and so long as soils and seasons differ, the true answer will be: There is no best fertilizer for any crop, what is advisable in one case is not in another, and the only way to find out what is best for a farm or a field is to study it by careful observation and experiments. From last season's experiments I selected (March *Agriculturist*, p. 94), one illustrating what a single farmer learned by his own tests. I now give several which exhibit the different action of the same materials on different soils, with different crops, and in different seasons, choosing some that have been repeated year after year with the same fertilizers on the same plots. Some of the Experimenters are already well known to older readers of the *American Agriculturist* by the excellent work they have done and reported from season to season.

Mr. Bartholemew's Experiments.

These have now continued five years, have covered nearly one hundred plots, and are the most instructive and valuable field experiments ever made, to my knowledge, by a private individual in this country. In every trial, each plot receiving Phosphoric Acid has given a more or less satisfactory return, and every one without Phosphoric Acid has failed. Nitrogen and Potash have each increased the yield, but with corn neither has brought enough increase to pay the cost, while potatoes have responded profitably to both, except in very bad weather. That is to say, with potatoes, Nitrogen in Nitrate of Soda, in Sulphate of Ammonia, in dried blood or in Peruvian guano; Phosphoric Acid in "plain" Superphosphate (dissolved bone-black), and Potash in Muriate of Potash, have each and all, both singly and combined, increased the yield enough to much more than pay their cost. But with corn, Superphosphate only has proved profitable, and the loss with the Nitrogenous manures and the Potash Salt has been larger or smaller in proportion as more or less was used.

Mr. Newton's Experiments.

Here we have, with corn, almost exactly the opposite result. Potash, indeed, is as ineffective as in Mr. Bartholemew's experiment. But the Phosphoric Acid so useful with Mr. Bartholemew, has on Mr. Newton's land scarcely any effect at all. The money invested in the Superphosphate and in the Potash Salt is thrown away. But the Nitrogen, which helped Mr. Bartholemew's corn so little, is uniformly efficient on Mr. Newton's soil. The corn responds largely and profitably to Nitrogen in every form and on every plot, and rises and falls regularly as more or less is applied. Even in the very unfavorable season of 1881, when everything else failed, 72 lbs. of Nitrogen in 450 lbs. Nitrate of Soda, brought 54 bushels of shelled corn per acre. The cases in which corn responds decidedly to Nitrogen are so rare that when Mr. Newton's report came in, season before last, I—well, asked him to try again. He did so, and with the same result, except that the bad weather reduced the crop, and writes: "So you see Nitrogen is king of my hill."

MR. HICKS has a still different experience. His soil demands Potash, Nitrogen helps a little, Phosphoric Acid more, and Potash most of all.

PROF. THORNE'S corn suffered from severe drouth and shows no very decided results. The other plots, not given here, told a very decided story, to wit: that Nitrogen positively injured the crop. Indeed, there are numerous cases where Nitrogen reduces the yield of corn even in the most favorable seasons.

PROF. SANBORN, of the New Hampshire Agricultural College, reports a case in which Sulphate of Ammonia has utterly demoralized the corn. What the reason is I should be very glad to know.

EXPERIMENTS WITH POTATOES, CORN, AND COTTON.

YIELDS PER ACRE WITH DIFFERENT FERTILIZERS.

MR. W. J. BARTHOLEMEW, Putnam, Conn.—*Soil:*—Hill land, dark loam, compact subsoil; worn out meadow. Experiments all in same field; those of 1879, '80, and '81, repeated with same crop and fertilizers on same plots each year. *Weather:*—1878, favorable; 1879, cold, unfavorable; 1880, favorable; 1881, cold, wet, very unfavorable.

MR. W. C. NEWTON, Durham, Conn.—*Soil:*—Hill land, dark loam, loam subsoil, moist; old grass land. Experiment of 1881 on adjoining portion of same field as 1880. *Weather:*—1880, favorable; 1881, unfavorable.

MR. EDWARD HICKS, Old Westbury, L. I.—*Soil:*—Sandy loam, loam subsoil. Experiment of 1880 on worn out pasture; experiment of 1881, after fodder corn, manured with a "complete fertilizer." *Weather:*—1880, very favorable; 1881, dry, very unfavorable.

MR. C. E. THORNE, Farm Manager, State University, Columbus, Ohio.—*Soil:*—Upland, clayey loam; naturally wet, but drained. *Weather:*—Severe drouth.

PROF. W. C. STUBBS, State Agricultural and Mechanical College, Auburn, Alabama.—*Soil:*—Upland, sandy, clay subsoil; very dry; worn out grass land. *Weather:*—Unfavorable.

No. of Fertilizer			0	A	B	C	D	E	F	G	H		00
Fertilizers per Acre.			No Manure.	Nitrate of Soda, 150 lbs.	Dissolved Bone Black, 300 lbs.	Muriate of Potash, 150 lbs.	Nitrate of Soda, 150 lbs. Dissolved Bone Black, 300 lbs.	Nitrate of Soda, 150 lbs. Muriate of Potash, 150 lbs.	Diss'd Bone Black, 300 lbs. Muriate of Potash, 150 lbs.	Nitrate of Soda, 150 lbs. Dis. Bone Black, 300 lbs. Muriate of Potash, 150 lbs.	Plaster, 200 lbs.	Farm Manures.	No Manure.
Valuable Ingredients per Acre.				Nitrogen, 24 lbs.	Phos. Acid, 48 lbs.	Potash, 75 lbs.	Nitrogen, 24 lbs. Phos. Acid, 48 lbs.	Nitrogen, 24 lbs. Potash, 75 lbs.	Phos. Acid, 48 lbs. Potash, 75 lbs.	Nitrogen, 24 lbs. Phos. Acid, 48 lbs. Potash, 75 lbs.	Sulphuric Acid and Lime.	All, in varying proportions.	
Cost per Acre				$5.63	$5.25	$3.38	$10.88	$9.00	$8.63	$14.25	$0.80	var'ble	
Mr. Bartholemew	Potatoes, 1878,	bushels	130	162	200	125	210	....	220	250	150	....	
	Potatoes, 1879,	"	46	42	78	46	114	52	115	130	....	....	56.
	Potatoes, 1880,	"	78	90	112	116	112	112	114	152	....	....	62.
	Potatoes, 1881,	"	30	37	46	37	45	39	64	88	....	....	44.
	Corn, 1878,	"	17.7	15.1	39.9	19.1	41.9	21.1	43.1	51.7	....	49.8	....
	Corn, 1879,	"	7.7	7.4	36.5	7.7	41.4	7.1	42.0	45.7	....	36.0	8.5
	Corn, 1880,	"	22.2	20.1	43.2	24.7	45.1	24.0	52.8	50.0	....	....	....
	Corn, 1881,	"	4.5	5.5	10.2	7.5	13.1	3.5	21.2	24.9	....	....	8.8
Mr. Newton	Corn, 1880,	"	22.5	42.5	27.5	25.0	42.5	45.0	22.5	52.8	....	....	25.0
	Corn, 1881,	"	13.8	22.5	13.8	15.0	28.8	28.8	13.8	28.8	....	....	12.5
Mr. Hicks	Corn, 1880,	"	46.8	50.3	60.4	67.8	60.3	72.0	71.0	70.0	....	....	46.9
	Corn, 1881,	"	14.8	24.6	20.8	32.3	21.4	26.9	26.8	26.3	....	....	15.0
Mr. Thorne	Corn, 1881,	"	40.0	44.3	46.6	48.6	50.3	44.9	52.0	49.1	....	43.7	35.4
Prof. Stubbs	Cotton, 1881,	pounds	587	805	1,162	564	1,599	932	1,219	1,541	....	....	345.

EXPLANATIONS.—The fertilizers supplied Nitrogen, Phosphoric Acid, and Potash, singly in *A*, *B*, and *C*; two by two in *D*, *E*, and *F*; and all three together as a "complete fertilizer" in *G*. Nearly all the experiments included several plots with other fertilizers besides those given here. The plots were one-tenth or one-twentieth acre each.

REMARKS.—In Mr. Bartholemew's experiments, Phosphoric Acid was uniformly efficient. Nitrogen and Potash had but little effect on corn, but were both profitable for potatoes whenever the weather was not too unfavorable. —In Mr. Newton's experiment, nothing had much effect except Nitrogen, which was very efficient. On plots not included here, the complete fertilizer, with 450 lbs. of Nitrate of Soda per acre, brought over eighty bushels of corn per acre in 1880, and even in the very bad season of 1881, 450 lbs. of Nitrate of Soda alone brought the yield up to nearly 60 bushels.—In Mr. Hick's experiment, on the other hand, Potash is the most effective ingredient.

Fertilizers for Cotton.—Nitrogen in the Southern States.

MR. STUBBS' experiment with cotton, is very interesting. The figures cover only part of the experiment, and this is only one of a considerable number made by him during several years. His conclusions alone would make a long article. He finds that:

(1) "Our soils which result from disintegration of metamorphic rocks (principally hornblendic and feldspathic), need a little Nitrogen, much soluble Phosphoric Acid, and no Potash for cotton."

(2) "Our great want, and it seems to prevail through the older Cotton States (unless it be on the black cretaceous prairie cotton belt of Alabama, which has not been thoroughly tested), is soluble Phosphoric Acid. On worn out soils a small amount of Nitrogen is required."—A fertilizer with three per cent of Nitrogen, and ten per cent of soluble Phosphoric Acid he finds to the purpose.

(3) Phosphoric Acid hastens, and Nitrogen retards the maturing of the crops.

(4) Cotton seed and cotton seed meal are as effective as any of the other nitrogenous fertilizers, such as dried blood, Sulphate of Ammonia, or Nitrate of Soda, and far cheaper and more economical.

The Cotton States import from the North, the East, and the West, from England, from South America, and from the Islands of the Sea, millions of dollars' worth of Nitrogen. If they will use a home product instead of ransacking the world and paying their money for far costlier and no better articles, if they will practice the doctrine that Prof. Stubbs and others are practising so forcibly, the saving will be incalculable.

Commercial Fertilizers and Farm Manures.

One thing that impresses me more and more every year as I look over the results of each season's experiments, is that the proper use of commercial fertilizers in most cases, is to supplement the manures of the farm. Thus, Mr. Fairchild, whose experiment was quoted in March, and who has excellent success with commercial fertilizers, finds that a small quantity of stable manure with a dressing of bone and potash salts, does better than any thing else he has used. He uses for corn, per acre, twelve loads (on a wagon that carries about 30 bushels), or one-third of what he would ordinarily call a fair dressing of stable manure, with 200 lbs. of fine bone and 150 lbs. of Muriate of Potash per acre, the two latter costing seven dollars. This has brought, during each of the past three seasons, on very poor land, about 65 bushels of shelled corn per acre and a nice growth of stalks, and has left the land in very good condition for the next crop. For example, in one case, oats the next season with no further manuring yielded 40 bushels per acre.

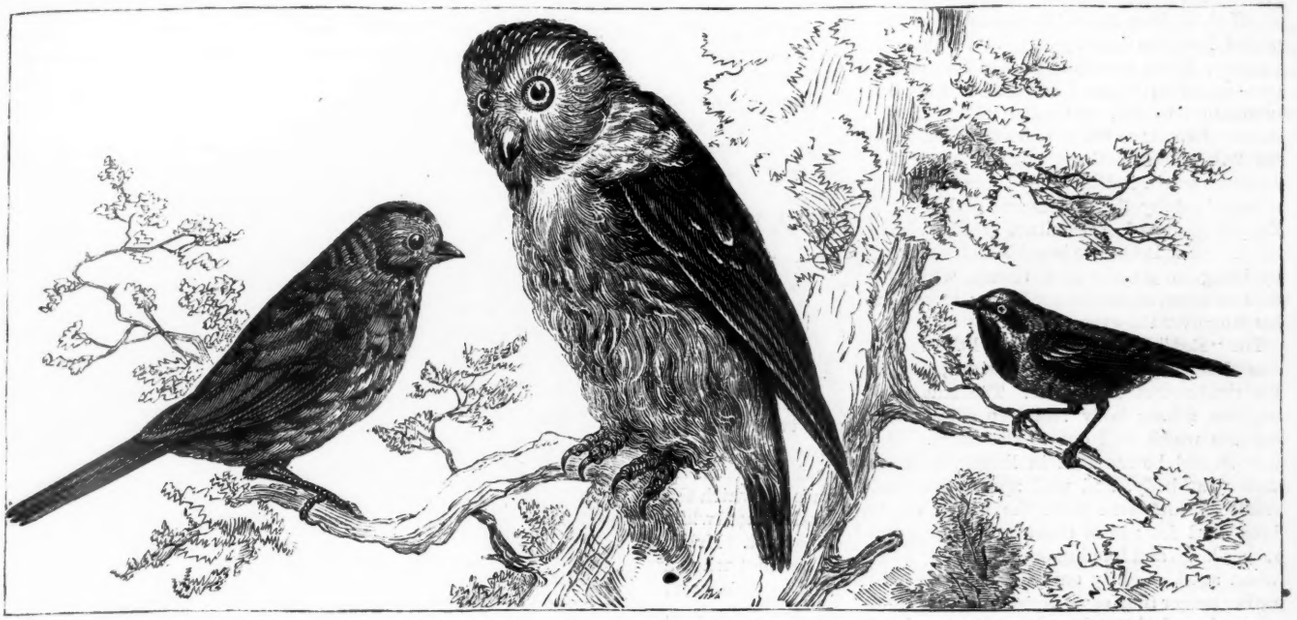
Mr. Bartholemew likewise gets far better results from a light dressing of stable manure with a little Superphosphate, than with a large dressing of either farm manure or of commercial fertilizers alone.

If there is one thing above another that is taught by the testimony of the experimenters, and by the hundreds of reports of their work sent me during the past five years, it is that, as I have so often said, the only way to find what fertilizers may be used with profit, is by careful observation and experiment. I gladly second the advice repeated once more by the editor of the *American Agriculturist* to its readers, to experiment for themselves.

House Plants Out of Doors.—It is too often the case that plants from the window, when brought out, are put in a place where they are seldom seen, and either grow up out of shape, or are so dried, that they dwindle. If the plants are to go back in autumn, place them where they will be seen, and kept in shape by pinchings; set the pots on a layer of coal ashes, to keep worms from entering them. Give them partial shade, and do not let them suffer for lack of water, or allow insects to damage them.

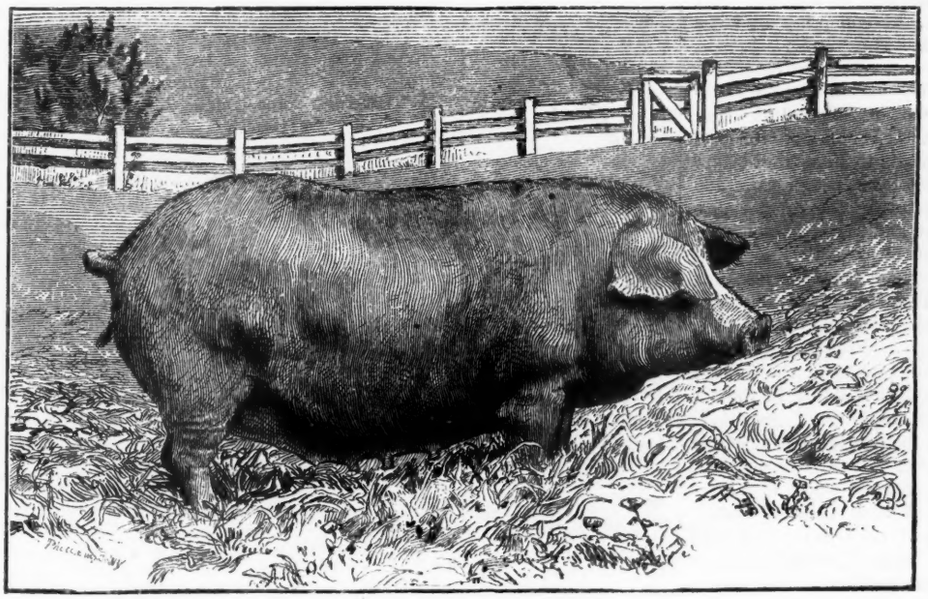
Three Spring Birds.

The Fox Sparrow, during the season of its migrations, is a common bird in the United States east of the Mississippi River, but is not known to breed in any part of this country. This is the largest and handsomest of all our sparrows; length, about seven inches; color, a rusty-red above, with small ashy streaks on the head, and larger ones on the back; wings rusty, with two slender bars of white; beneath, white, with many rusty blotches. The Fox Sparrow moves northward earlier than the White-throated Sparrow, and reaches the latitude of Boston about the middle of March, where it often remains until the 20th of April, when it passes northward to its breeding grounds in the wooded districts of the fur countries. Its nests are sometimes made in trees, but are usually placed on the ground, where they can be partially concealed with mosses, tall grass, or shrubs. The eggs, five usually in a nest, are oblong, light bluish-white, and thickly spotted with rusty brown. When the nest is approached, the female bird uses various artifices to lead the intruder away. Returning, this sparrow passes rapidly southward in October, and seldom stops for any length of time on its way to its winter home. It is found in South Carolina, and the neighboring States, from November to April. These birds keep in small flocks during their stay in the United States, and seldom mingle with other species of sparrow which may be in the vicinity. They are very shy, pass most of the time on the ground in the edges of thickets or moist woods; scratch like hens, and feed principally on seeds. These sparrows are usually silent, only occasionally uttering a low, soft call note, except in spring, when the male becomes remarkably musical, and ranks among the sweetest of feathered songsters.



THREE SPRING BIRDS: THE FOX SPARROW, ACADIAN OWL, AND GOLDEN-WINGED WARBLER.—*Engraved for the American Agriculturist.*

The Acadian Owl is one of the smaller and prettier representatives of the Owl family. It is found in nearly all parts of the United States. Hight, six to eight inches; general color, olive brown, with the head streaked, back spotted, and the tail barred with white; white beneath, with blotches of reddish chocolate. The love notes of the Acadian Owl resemble the noise made by filing a large saw, and, on this account, it is sometimes called the "Saw-whet" owl. It has also the power of changing the apparent direction of the sound of its voice, and is quite an accomplished ventriloquist. Its eggs, three to six for each nest, are white and nearly globular. They are often laid in abandoned crows' nests, or in the hollow of trees a short distance from the ground. This owl breeds more freely near the Atlantic Coast than inland. It is more social than most species of owl, several being sometimes seen in company; it is also quite tame. Specimens have occasionally been caught in large cities. During the day it can be easily captured, but at night it is active and vigilant. When wounded it frequently feigns death. It destroys field mice and also small birds.



THE "RED" BERKSHIRE SOW "BELLE."—*Engraved for the American Agriculturist.*—(*See next page.*)

The Golden-Winged Warbler is a handsome little bird, about five inches long; color, bluish-gray above, with top of the head and broad bars on the wings a rich yellow. A broad streak of black runs from the bill behind the eye and covers the chin, throat, and fore part of the breast. The under parts are generally white. This bird is rare. It has been observed from Georgia to Massachusetts, and from New Jersey to Wisconsin. Its large nests are made on the ground, or in clumps of bushes, in woodlands close to the margins of swamps. The eggs, four or five in number, are clear white, with reddish spots, and very beautiful. The Golden-Winged Warbler reaches the latitude of Boston in May, and remains until September, when it returns South for the winter. Its song consists of

only four or five syllables, which are peculiar and not very pleasing.

"Red" Berkshire Swine.

There has been some inquiry about the "Red" Berkshire swine. They are undoubtedly an off-shoot from the old Berkshire breed imported into this country early in the present century. Black Berkshire hogs at the present time are often "plum" colored, showing an inclination to red, while the "Red" Berkshires often have black hairs mingled with the red, and sometimes black spots. The common origin indicated by these markings is sustained by the statements of Loudon's Encyclopædia of Agriculture (1825), which says:—"The Berkshire breed is distinguished by being in general of a tawny, white, or reddish color, spotted with black; large ears hanging over the eyes, etc."

The "Red" Berkshires vary a little in the size of the ears, the length of snout, and in the shadings of their color. The true type requires a long body and deep sides, holding the width well out to the hams. The legs should be medium in length, well set under the body, and well apart; the head small as compared with the body; cheek broad and full; neck short and thick; ears rather large and lopping over the eyes; face, when aged, slightly curved, with the nose rather longer than some breeds; medium and strong boned; hams broad and full, reaching well down to the shanks; tail hairy and strongly set; a good coat of hair, medium in fineness, inclining to bristles on the top of the shoulders, usually straight, but sometimes a little wavy; color glossy red, varying from dark to light yellowish red, occasionally brownish hairs, and small flecks of black on the belly and legs. The darker reds are preferred. In disposition the "Red" Berkshires are mild, gentle, quiet, and easily confined by low fences. They are very prolific, and yield a large flow of milk. The offspring are large and strong at birth. The young pigs will bear heavy feeding and rarely get cloyed in their appetites. They possess the old Berkshire characteristic of marbled flesh—lean mixed with the fat. It is common for pigs eight to nine months old to dress from 300 to 350 lbs., and old hogs often weigh from 600 to 800 lbs. On account of the greater proportion of lean meat, and the extreme length of body and depth of the sides, they are peculiarly bacon hogs. The hams are also fine and of large size. These hogs never blister or get scurvy in summer or winter, and are not liable to have mange or other skin diseases. They are valuable to cross upon the delicate and fine-boned breeds, imparting to the offspring stamina and rapidity of growth.

The engraving on the preceding page of the breeding sow, "Belle," owned by Col. F. D. Curtis, is from a photograph taken soon after weaning a litter of nine pigs. "Belle" measures five feet and one inch from the end of her nose to the base of her tail. She is two feet and eight inches high from the loins to the ground, and has a depth of side of two feet. Her color is bright red. She had two litters of pigs the last season, and has never been fed to force her growth.

Shading Plants.—Newly transplanted plants often have a hard struggle under our hot sun. If they can have a little help until they "get hold of the soil," success is more certain, whether with vegetables or flowers. Whatever will shield the newly-set plant from the direct sun will answer; even a piece of paper will be of service. Shingles are exceedingly handy in the garden. One may be pushed into the ground to afford shade, or better, two may be placed over the plant like a roof. In the lack of anything else at hand, we have stuck up a blunt stake, put a newspaper over it tent-wise, placing earth on its edges to hold the paper in place. Of course it is better to transplant in a cloudy time, but sometimes one cannot wait, and a little shade for a day or two will secure success.

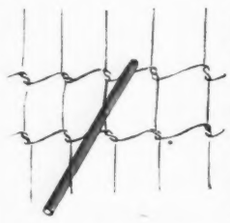
A Holder for Splitting Wood.

Mr. A. R. Dixon, Lake Co., Ohio, has a simple and effective holder for use in splitting wood, which is shown in the accompanying engraving. A crotch is cut from a tree a foot in diameter, and a piece of heavy plank is nailed upon the two ends by large spikes, thus making an enclosed space in which the wood is placed while being split. Mr. D. writes that when a lad he split a great toe with an axe, and hopes this device, which has been of so much good service to him, will prevent others from suffering a like injury.

A WOOD HOLDER.

Tightening Sieves.

Mr. W. Strock, Bucks Co., Pa., sends us a simple, quick, and effective method of remedying grain sieves that have become sagged from use. He writes:—"Take a round piece of iron or wood—or a lead pencil will do—and bend the wires as shown in the sketch (see engraving), going over every fifth row of meshes, both up and down and across. If all of a row is bent the same way, the meshes will not be enlarged.



A SIEVE TIGHTENER.

How are New Varieties of Potatoes Produced?

The above question is asked by "D. W.," Lee Co., Iowa, who follows it with:—"Can you give the manner of fertilizing, the time to fertilize, and the time to plant the seed balls?" Many of the well-known varieties of potatoes have not been "produced" at all; that is not by any direct agency of the cultivator. We must in the first place state that the potato is not a *root*, but a short, thick under-ground branch of the plant. We have several times seen, and no doubt many of our readers have also, the branches of the potato vine developed as potatoes above ground. We must start with the idea, then, that the potato is really a branch or stem. It is a well-established fact among fruit growers and florists, that a shoot or branch of a plant may produce very different fruits or flowers from the rest of the plant, and this occurs without any assignable cause, and without any human agency. These cases, by horticulturists called "sports," are very numerous. A late peach has been known to produce a branch on which all the fruit was early. Other peach trees have formed branches which bore only nectarines—merely a sport of the peach. Certain branches on yellow plum trees have produced red plums, and shoots on purple grape-vines have borne white grapes. In flowers, especially roses, these variations are very numerous. We only cite these cases to show what may take place, indeed, has taken place, in the potato. The tuber being really a branch, it may, like a branch of peach, plum, or grape, vary. A notable example of this is the "Late Rose." In a field of "Early Rose," a single plant was found to be green, and still growing long after the vines in the rest of the field were dead and ready for the harvest. The owner had the good sense to save and perpetuate the product of this vine, and now, as the "Late Rose," it is one of our valuable kinds. Other varieties have been produced in a similar manner. We can not cause this variation to take place, but as it may occur anywhere, the careful cultivator should take note of any marked differences in the vines that may appear in his potato field.

As to raising new varieties from seed, we doubt if much actual cross-fertilization has ever been done. To refer to fruits again—the seeds of the apples or the peaches from any one tree, taken as they are, without any attempt at fertilization, will give a great variety of seedlings, and we know it to be the same with potatoes. That greatest of all modern potatoes—greatest in itself and in the varieties it has given rise to—the "Early Rose," came from a chance seed ball, of the coarse, but prolific "Garnet Chili." A grower had picked this seed-ball from his patch without selection, and pinned it against his window to ripen, and finally gave it to Mr. Breese—of blessed potato memory—who sowed the seeds. From the seeds in this chance ball, picked without any selection, came "Early Rose," "Breese's Prolific," and several others, all of excellent quality, but all very different, some being white, others red; some long, others round, some early and some late; indeed from that one, and now famous seed-ball, were raised potatoes differing among themselves as much as potatoes can differ. In view of the results from this single seed-ball, we doubt many of the stories of direct crossing. Still, if one wishes to experiment in this, the flower of the potato affords an easy subject, as the anthers do not shed their pollen early, and if removed as soon as the flower opens, the pollen from another flower can be readily applied to the pistil. As to raising potatoes from the seed, the balls are kept until the time for sowing, when the seeds are removed and treated precisely as tomato seeds. They are started in boxes in the greenhouse, the hot-bed, or in the kitchen window (Mr. Breese followed the last named method), and the plants treated exactly like tomato plants, save that they may be set in the open ground somewhat earlier. Mr. Breese informed us that the original plant of "Early Rose" gave him several good sized tubers the first year, and stated that in his experience, if a seedling potato did not do this the first season, it was not worth while to continue to grow it.

A Medium Bank Barn.

Mr. J. Binns, Jefferson Co., Ohio, erected a barn last year, of which plans are here given. It is on a side-hill, is 65 feet long, 36 feet wide, and 18 feet high from sill to plate in front. The elevation of the front is shown in figure 1; the ground being made of easy grade up to the doors. Figure 2 shows the rear elevation, and figure 3 the plan of the basement, which is 8½ feet high, and contains horse

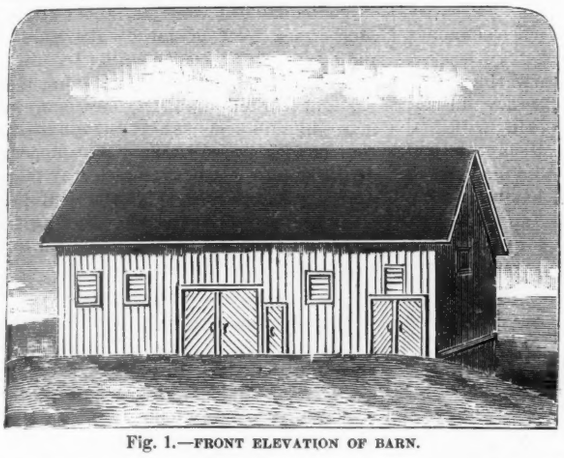


Fig. 1.—FRONT ELEVATION OF BARN.

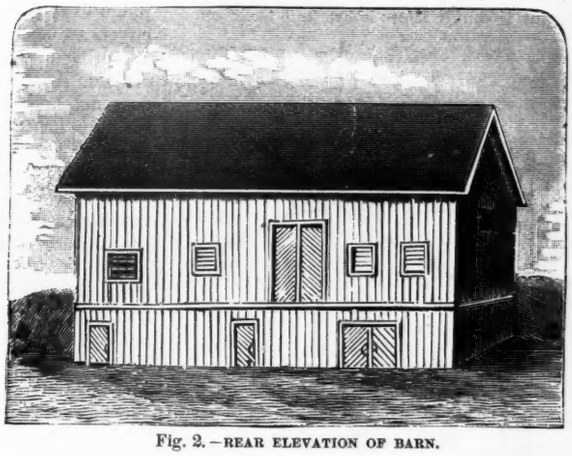


Fig. 2.—REAR ELEVATION OF BARN.

stalls, feeding passage, cattle and sheep pens, etc. The basement wall is of stone two feet thick except 24 feet on the front opposite the threshing floor, where it is three feet in thickness. The rear side is weather-boarded. Figure 4 shows the plan of the main floor; *a*, threshing floor, 20 feet wide; *b*, entry to implement room; *c*, wool room; *d*, granaries, of tongued-and-grooved boards, with doors opening from threshing floor. A stairway leads to the basement; *f*, hay or grain mow, 20 feet wide; *g*, implement room; *h*, work bench; *i*, hay shute.

ESTIMATED COST OF BARN.

Mason work, quarrying stone and digging cellar	$250 00
Cost of lumber for frame, flooring, etc	286 60
Bill of pine boards planed for siding granaries, etc.	197 46
13,000 oak shingles	100 00
Carpenter work	340 00
Expenses raising frame	15 00
Nails, hinges, locks, etc	40 00
Copper lightning rods	73 33
Tin spouting	13 50
Hay Carrier, rope, and putting up in barn	28 11
Paints and painting	46 00
Stone for foundation	15 00
Hauling logs and lumber with our own teams	95 00
Total	$1,500 00

Mr. B. writes us:—Many of the items are taken from the actual bills. But others I had to estimate. I engaged a portable steam saw

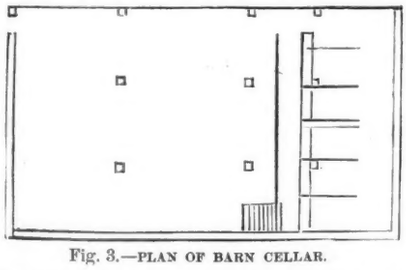


Fig. 3.—PLAN OF BARN CELLAR.

mill, which was set on a spring branch at the edge of the woods from which we had the timber cut. As the hard-wood timber was cut from timber growing on the farm, and most of the hauling was done with our own teams, the whole cost of the barn was not cash outlay, but I have estimated the timber and hauling at a moderate valuation. The stone for the foundation was quarried on the farm and hauled by the masons to where it was used as part of their contract.

Breeding Turkies for Profit.

D. Z. EVANS, JR.

The turkey crop is an uncertain one. Late, wet spring months, followed by a noticeable absence of grasshoppers and other insects, result in a small number of turkies and consequent high prices. Dampness is fatal to young turkies, especially those in the "downy" state. Young turkies are hardy after they have become fully feathered and are half grown; they can then stand almost anything but foxes and chicken thieves.

Early in spring the turkey hens seek a secluded place for nests. They should then be watched, but not disturbed, and when they have laid a fair clutch, say nine to eleven eggs, these should be gathered carefully and at once taken to the barn or hen house, and there set under a common hen. Taking the eggs from the turkey hen will cause her, usually, to hunt new quarters, and she should be permitted to hatch her second clutch of eggs. It is later in the season, and she will not endanger her young brood when strolling. By this means, two settings or broods can be secured from each turkey hen. The first brood being hatched in early spring, when the weather is more inclement, requires extra attention, and this is accorded more readily when under the care of a common hen.

Care of the Young Birds.

The young birds should be left under the hen for one day after they are hatched, to gain strength and become dry. They need no food during this time, and should be left undisturbed. Freedom from wet or dampness is absolutely essential to success in breeding turkies. Make a commodious coop for them, with a stout board bottom, the top being rain-proof. The coop should be slatted in front, that the young birds may run in and out. Arrange a board to close up the entrance during the night and when wet outside. A couple of common boards, a foot or eighteen inches wide, placed edgewise, make a > shaped yard or run before the coop. Feed five times daily, but no more should be given than the birds will eat up clean. Clean the coop every day or two, after which it should be sprinkled with fresh, clean and dry sand.

All young poultry, and especially turkies, are better without any water for the first two or three weeks; they get all the water or liquid needed at this age from their moist (though not wet) food. Too much water causes colds, diarrhœa, and their attendant evils.

Food.—This is a point on which breeders differ, but the system I have adopted invariably gives us good results. I commence feeding with either "Cottage Cheese" (Smear-Kase), mixed with finely chopped onion tops, lettuce, or parsley, seasoned with a trifle of Cayenne pepper; or else stale bread moistened with sweet milk is used. The bread is soaked in the milk and squeezed as dry as possible with the hand before feeding it. This is excellent feed, and is my main dependence for all kinds of young fowls. Corn meal should not be fed to young turkies. When two weeks old give them a run with the hen outside the yard, during the middle of the day; they should never be permitted to run out while there is dew on the grass.

Green Manuring.—A soil run down by long cropping, can be brought back to fertility by green manuring. At first it may be even difficult to get a good growth of any plant, without the use of some commercial fertilizer. Peruvian guano is excellent to give this start, after which the plowed-under crop will aid the next one, and so on until the soil becomes well-filled with plant food. Buckwheat is a close feeder, and is a good first crop; clover may follow, and, when a fair growth of this is obtained, the soil will bear other crops. After land has been brought up to reasonable fertility by green manuring, it should be kept there by the addition of manure from the barn-yard, or by the use of

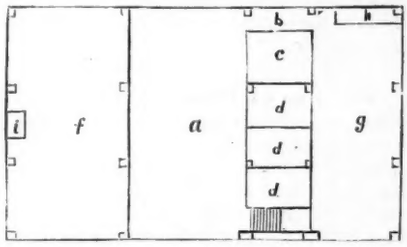


Fig. 4.—PLAN OF MAIN FLOOR.

commercial fertilizers.—It is poor farming that runs down the soil; but if it is already down, it is wise to bring it up in the cheapest and quickest way possible. Manuring with crops that are close and deep feeders, like those above mentioned, will aid in this, and any manure that may be used with these, only hastens the work of restoration.

A British Columbia Beef Raiser.

Mr. "M. L.," of Spallumchean, B. C., writes us:—"I enclose a sketch of a British Columbia way of elevating beeves, in dressing. Two posts are set about 15 feet high. A deep mortice is cut in the top of each to receive the roller, which is grooved at the points of turning. One end of the roller extends beyond the post, and through this end three two-inch holes are bored. Three light poles are put through these holes, and their ends

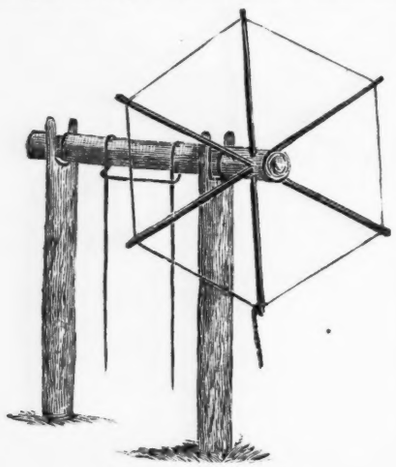


Fig. 1.—A BEEF RAISER.

connected by a light rope. In raising the beef the middle of a stout rope is thrown over the roller; the ends are drawn through the loop, and after the beef is fastened to the loose ends the roller is turned *against* the loop by means of the "sweep," or lever arms. A heavy beef can be easily raised, and may be fastened at any hight desired, by tying the end of one of the levers to the post with a short rope."....—The same writer sends us

"A HINT FOR PIG KILLING.—We lay a log chain across the scalding trough, and put the pig upon it. Cross the chain over the animal,

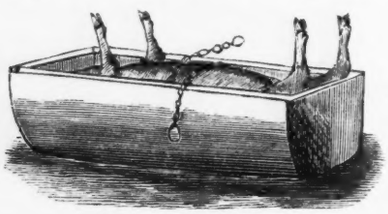


Fig. 2.—SCALDING A PIG.

and a man at each end of the chain can easily turn the pig in the scald, or work it to and fro as desired."

The Use of Lime.—A fertile soil contains considerable organic matter, which in decomposing yields food for the growing plants. If this decomposition is so slow that an insufficient amount of food is rendered fit for the crop, lime will often hasten decay and add to the available stock of fertility in the soil. It is seldom needed directly as food, because very few soils are devoid of considerable lime, but its decomposing power changes other soil ingredients to a form in which they can enter the roots of the plants. Lime may thus be considered a stimulant, and unless there is organic matter in the soil for it to act upon, there is seldom any use of applying it. It may even exhaust a soil too rapidly of its organic matter. Lime should be applied soon after burning, while still caustic, and intimately mixed with the soil. Ground, unburned lime-stone is of little value, except perhaps on some few soils that chance to be without any lime, and such soils are rare.

Judging Milk by Test or Taste.

Few milk producers know the ordeal to which their milk is subjected when a good judge examines the can. If milk is scarce, buyers are easily satisfied, but when abundant in spring and early summer, they become critical. As the weather grows warmer, milk does not keep so well. Stables are filthier, the dung heaps higher, and reeking with foul odors; the cows are shedding their coats, and their flanks are gradually becoming denuded of the "scale armor" which has been accumulating all winter. All these are causes, direct or indirect, of "cowey" odor in the milk, dirt in the bottom of the can, poor flavor of the milk and cream, and the butter or cheese, and poor keeping quality. The receiver of milk at a factory, or creamery, if he knows his business, will be just as particular about receiving milk in good order, as is the city milk dealer about that he accepts from the farmer, to be paid for at the end of the fortnight. In fact, the fore-handed city milk dealer generally manages to be quite independent of his milk producers. As soon as milk is plenty he will be in receipt of a few cans more than he absolutely needs, so he can cull out a few, which he condemns to be sold for what they will bring, or if there is no sale, he ships them back to the farmer upon whom the loss falls. It is rare that the farmer, fresh from the cow stable, his boots, clothes, whiskers, and hands smelling as "cowey" as stable litter, can perceive anything wrong in the milk, while the full knowledge that he has shipped a great deal worse milk than that all winter, and at the same time been much more liberal in dousing in pail-rinsings than he is now-a-days, makes him feel as if he were unjustly dealt with, which is far from true. This leads us to the point of telling how milk is judged.

1st—"Scientific" Judgment.

A young doctor has the top taken from a can—it is a question if he could do it himself without a mallet. He feebly stirs the milk, notes the temperature, takes a sample of milk and fills a glass in which he puts his lactometer, and notes the point at which the lactometer floats, and corrects the reading by the temperature, and arrives approximately at the specific gravity, or the density, of the milk. The result is absolutely valueless, for by the removal of a portion of cream and the addition of a portion of water the density of any milk will remain unaltered. If fraud is suspected by this test, by the color of the milk or its adhesion to the sides of the glass, a sample of milk is retained and an analysis made which may have some value. About thus is milk tested by the Inspectors of the Board of Health. It follows as a matter of course that much poor milk has been passed, and in all probability some good milk has been condemned.

2d—Practical Judgment.

The milk dealer, when he examines a can of milk, gives it a whirl off to one side, and before he loosens the top, gives the milk a thorough stirring up by rocking the can a few times; then he *jerks* the top off, and immediately—stooping over to be close to the can, snuffs his lungs full of air out of the deep flanged cover. Then he takes good note of how the milk flows down from the inner sides of the top. He may smell also at the mouth of the can, but the whiff he gets in the can-top is most reliable. A gill of milk collects in the cover—this he tastes—and between smell and taste and looks, passes judgment on the spot.

He can taste *water*, even though the milk, watered as it may be, contain over 12 per cent of cream. He will detect a "cowey" odor, the odor of rag weed or garlic; the stale taste and odor of badly cooled milk; the first incipient lack of sweetness or beginning of souring, and will tell to a nicety how many hours that milk will keep "sweet enough to scald." And besides, he will take a pint dipper and thrust it into a can in such a way that the specks and dirt present at the bottom will come welling up to the top, showing themselves like a school of fish, and then sink to rest on the bottom again.

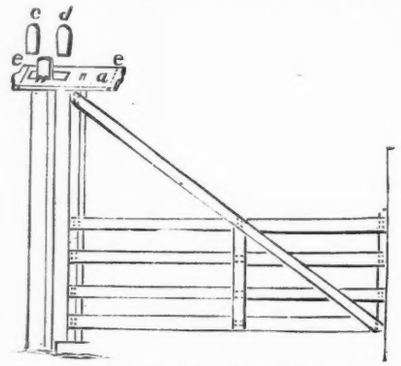
3d—The Cream Test.

At the factory or creamery, the milk of each farmer is strained and weighed. The straining shows the dirt. Then, every day, a sample test-tube of milk should be set for cream to rise, and thus every "patron" be served alike. A record ought to be kept of the cream percentage, which shows after twelve hours. A convenient plan is to have one or more pails filled with water and broken ice, and covered with a board, bored full of holes just large enough to hold a ten-inch test-tube. The tubes as fast as they are filled are set into the ice water, and the cream rises very rapidly.

Thus with a little care and good judgment a close watch is kept over all the milk received, and the article will tell its own truthful story of poor feed, of dirt, of fraud, or of honest folks, and good farmers and feeders.

A Good Farm Gate.

Mr. N. Y. Abbott, Columbia Co., Wis., has some time past used the gate shown in the engraving, with much satisfaction. The hinge-post is about twice the hight of the gate, and has a cap-piece, *a*, near the top. This cap is of 2 by 6 hard-wood, strengthened

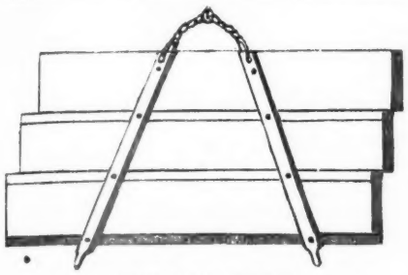


A GOOD GATE FOR THE FARM.

by two bolts, *e*, *e*, and held in place by two wooden pins, driven just above it and through the tenon end of the post. Wedges *c* and *d* are driven in the cap on each side of the post. Should the gate sag, the wedge, *d*, may be loosened, and *c* driven further down. The lower end of the gate turns in a hole hored in a hard-wood block placed in the ground near the foot of the post.

A Home-made Clod Crusher.

Mr. Geo. R. Perkins, Madison Co., N. Y., writes us :—"Inclosed you will find a drawing of a very valuable farm implement which will interest the readers of the *American Agriculturist*. It will pay for itself in one day, if a farmer has no roller. I like it for smoothing after sowing ground to grass seed, wheat, oats, and other grains." It is made as follows :—Provide three 2-inch hard-wood planks, one foot wide and ten feet long. Lap the edges two inches, and securely fasten them. Two hard-wood scantling are cut to



A PLANK CLOD CRUSHER.

fit the upper surface of the united planks, and fastened by bolts as shown in the engraving; they project 4 inches behind for handles. The whiffletrees are fastened by a short chain to the front ends of the cross-bars. A 2-inch strip of hard-wood is nailed on the rear edge of the crusher, to hold any stones, etc., that may be put on the rear plank, for increasing its weight, as may sometimes be necessary in addition to add more than the driver's weight. On hard or lumpy land the crusher may be run bottom side up, when the rough edges will cut and break the clods. Mr. P. names the cost of this valuable farm implement at a low figure ($1.35).

Some Experiments with Durra.

BY I. H. MAYER, M. D., LANCASTER CO. PA.

On May 21st, 1881, one fourth of an acre (1) was planted with white and brown Durra. The soil was sandy, rather poor, with an under stratum of sandy clay, from two to six feet deep. The soil in this field produced 40 bushels corn per acre, by the side of the Durra. (2) Several days later some was planted in extremely poor sandy soil. At the same time a quantity (3) was planted in sandy loam, with a sandy subsoil, and on May 26th, a few hills were planted (4) in a rich clayey loam. The results in the four lots were nearly similar to a like experiment with Indian Corn. In lot No. 2 the growth was very short, scarcely three feet high, with an abundance of leaves and very small seed heads. In this lot the yield of grain was about the same as Indian corn, and the fodder yield was a trifle greater. In 1, 3, and 4, the yield of grain and fodder was not equal to the corn yield. In No. 4, the yield of grain was less than half that of corn. In lots 1 and 4, a number of the best heads were selected before fully ripe, and found to yield one quart of clean seed from three heads. Planted 3 by 4 feet, four plants to the hill, or the seed dropped in the row at the same rate, would show over 14,000 plants per acre. Basing the calculation upon three heads to the quart, or about 100 heads to the bushel, would give 140 bushels per acre, though the actual yield in either of the lots certainly did not reach forty bushels per acre. These experiments would indicate that even in the poorest soil in Lancaster County, at least, the crop is not preferable to corn. It will be remembered, too, that 1881 was very dry and unfavorable for corn.

In growth, Durra closely resembles Sorghum, or Broom Corn. The seed should be covered lightly—half an inch, or an inch—or it will be a very long time coming up, perhaps rotting in the soil. When it first makes its appearance above ground, it grows like Broom Corn, feeble, marked with red spots, and easily choked by weeks. After it produces six or eight leaves, the growth is very rapid, and the leaves then produced are of a dark green color, the stem and leaf being more or less covered with a white bloom. The upper part of the stem of a well-grown stalk makes a short curve, allowing the head to hang down, giving the plant a peculiar appearance, even before it is in bloom. [This shows that our correspondent experimented with the drooping varieties of Durra.—EDS.] The heads are shaped somewhat like Sorghum heads, though shorter and thicker. In consequence of the compact form of the heads, some of the seed in the largest spoiled from the effects of a few showers during the dry season. From this it appears that in a wet season the crop would prove a partial failure. The fodder, both green and dry, leaves, and entire stem, are eaten by cows and horses, the former preferring it dry to good corn fodder or hay. Green corn stalks from sweet corn appeared to be relished equally well. There were no marked effects produced by its use, either green or dry.

Barn-yard fowls are fond of the grain, and appear to thrive upon it. One month's trial, however, proved it to be quite inferior to wheat or buckwheat, and not much better than corn for the purpose of keeping fowls in the highest possible healthy condition. The various wild birds appear to be fond of it also. More than half the crop was harvested by the English sparrows. It seemed as if the large flock in the vicinity had invited all their relatives to the feast.

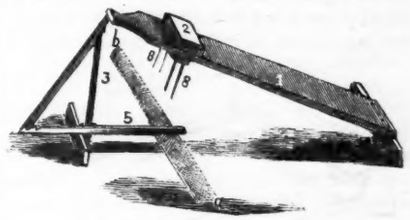
The seed, cooked before fully ripe, like green corn, is said to have the flavor of chestnuts. The six who tried it failed to find even a trace of chestnut flavor. There appeared to be some resemblance to boiled wheat, though I would much rather have the wheat.

The seed is rather difficult to cure. Being very much exposed on the heads, the greater part is readily secured by the birds; besides, the weather would usually bleach and otherwise injure the external seeds, while the center of the heads in a wet season would readily rot, or mould, as it did even this dry season. The small heads produced upon extremely poor soil, would not suffer from the last-named drawback. When dry, the grain drops very readily from the head, and this applies alike to large or small heads. The heavy heads, with their short, curved stems, make it quite troublesome to shock, and liable to be blown over when shocked, thus dropping much seed. The *white* is a beautiful grain, almost as large as white popcorn. The *brown* is scarcely superior to Dwarf or other good Broom Corn seed, which it closely resembles, and is fully as difficult to cure properly. The brown is the taller variety, while the fodder appeared to be the same in quality.

As food for man or beast, these experiments failed to produce any results, as the birds, already noted, secured fully half the seed, and the fowls were allowed nearly all that remained, mostly from the heads, before it was dry enough to grind.

A New Mole Trap.

Mr. J. C. Coons, Montgomery Co., Ky., has caught fifteen moles during one month with a trap of which he writes us as follows :—"The piece (1), is an inch board four feet long and eight inches wide; (2) is a twelve-pound weight. The "figure four" has the "trigger" (3) one foot long, and the other parts in good

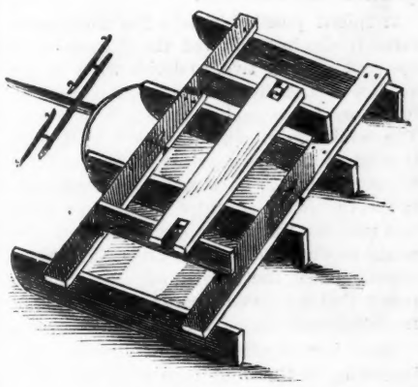


A EFFECTIVE MOLE TRAP.

proportions. The four barbs (8, 8,) are sharpened iron spikes eight inches long, fastened in a small block; the two pairs are about six inches apart. The trap is placed so that the falling spikes will strike into the mole "road." Press the raised earth down at one place, and bring the long end of the treadle of the "figure four" directly upon this point. The mole, in passing along his "road," will raise the earth and spring the trap, letting the spikes descend. It is well to press the "road" down at some point, *a*, *b*, on each side of the trap that has been sprung, as the spikes may not have killed the mole, and it might otherwise run off when the "dead-fall" is raised.

Another Corn Marker.

Mr. J. B. Pratt, Swain Co., Ohio, sends us the following description of a corn marker :—"Make the four runners of 2 by 6-inch plank, and 3 feet long; pin a board across the top at each end, and afterwards saw it in two in the middle and put on hinges. Fasten a 2 by 6-inch piece across the boards half way be-



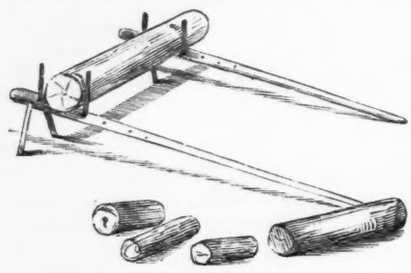
A HINGED CORN MARKER.

tween the runners, and place a board across the top with a slot in each end to set over a pin in the cross pieces. This makes a good place upon which to stand, and keeps every runner on the ground, over ridges as well as on level ground. I use a common buggy pole, and drive to a stake instead of by the last mark."—[The length of the two main cross-boards is not given. This will, of course,

depend upon the width desired between the rows, which may vary from 2½ to 4 feet, according to the soil, variety of corn, and whether for a grain crop, or for fodder. Some one may improve upon this by a simple method of fastening the runners so they may be changed in place to make the row marks of any desired distance apart.—ED.]

A Holder for Logs.

Mr. D. D. Day, Orleans Co., N. Y., finds a holder for logs so convenient that he sends us a sketch and description of it for the *American Agriculturist's* readers:—"Take two round poles, 4 or 5 inches through, and fasten two legs, about 20 inches long, in the largest



A HANDY LOG HOLDER.

end of each. The other ends of the poles rest on the ground. A number of holes are bored in the top of each pole, so that the log to be sawed may be raised and held at any desired hight. One man can readily roll up a log two feet in diameter."—The greater ease of running a cross-cut saw through a log thus raised is sufficient inducement to construct a simple holder like the one shown in the engraving from Mr. Day's sketch.

Some Facts About Cutting Hay.—I.

BY W. H. JORDAN, PROFESSOR OF AGRICULTURE, PENN. AGRICULTURAL COLLEGE.

"When is the best time for cutting grass?" has been asked again and again. Replies have been given now and then, as new facts have come to light, but, after all, has the question been answered?

It might possibly puzzle the thoughtful farmer, who has followed the discussions of the past year or two, to decide what is the verdict of scientific investigation on the one hand, or of practical farmers on the other. The opinion most generally held is that grass is most profitably cut while in bloom. Yet no one seems to have sufficient confidence in this opinion to consider further investigation useless. The final appeal must be to the actual feeding; such trials are so difficult to make reliable, the sources of error being so many, that we have to form a partial opinion from information obtained in other ways.

More investigation in this direction has been done in Germany than anywhere else. Some valuable work has been done in this country, however, within the past few years, though not yet sufficiently extensive to found very broad conclusions. In part of what follows, an attempt has been made to summarize the results of American experiments.

In discussing the time of cutting grass one needs to consider:—1st, Quantity; 2d, Composition; 3d, Nutritive relations and effects. The effect of the age of grass upon the quantity of production is determined by cutting equal plots of uniform grass at different periods of growth and accurately weighing the hay. Samples of the same have been analyzed in some cases. The plots in the experiments here mentioned have varied in size from one-twentieth of an acre to a full acre, their shape usually being long and narrow. The main source of error in such a method is the impossibility to select plots of grass that are absolutely uniform.

The following are the results of several experiments made in this country, and include four periods of growth, the figures being pounds of dry substance per acre. Experiments Nos. 1 to 7 were made at the Maine State College Farm—No. 1 by Prof. W. O. Atwater; Nos. 2 and 3 by Prof. J. R. Farrington; and Nos. 4 to 7 by the writer of this. Experiments Nos. 8 to 10 were conducted by Prof. J. W. Sanborn, of the N. H. Agricultural College, and No. 11 by W. R. Shelmire, on the Eastern Experimental Farm of the Pennsylvania State College. In Nos. 1, 4, and 5, the dry substance was determined by analysis. The figures for Nos. 2, 3, 6, and 7, have been calculated by allowing the weights of field cured hay to contain 20 per cent of water. In experiments 8, 9, 10, and 11, the hay was reweighed after having laid in the barn for several months, and one-eighth (12½ per cent) of these weights has been estimated as water. The figures must show quite close approximate to the actual yield of dry substance in the several cases.

TABLE 1.

	Year.	*Cut when well headed out.*	*Cut when in bloom.*	*Cut when considerably past bloom.*	*Cut when ripe.*
		Lbs. per acre.	*Lbs. per acre.*	*Lbs. per acre.*	*Lbs. per acre.*
1.....	1876	2,479	3,301	3,117	3,616
2.....	1878	2,976	3,040	3,312	....
3.....	1878	2,992	3,376	4,456	3,624
4.....	1779	2,536	3,456	2,784	....
5.....	1879	....	3,200	2,872	3,112
6.....	1880	3,620	3,540	3,080	3,800
7.....	1880	3,420	3,480	3,360	3,240
8.....	1879	....	2,415	3,096	....
9.....	1880	2,057	2,339	2,963	....
10.....	1880	....	2,034	2,562	....
11.....	1879	2,588	2,772	2,852	....
Average...		2,586	2,996	3,132	3,478

The above averages show a gradual increase of dry substance up to the time of ripening. As before stated, in some of the experiments samples of the hays were analyzed. This was done with Nos. 1, 4, 5, 8, and 9, and below is given their average composition at the different stages of growth.

TABLE 2.

	100 parts Dry Substance contain—				
	Ash.	*Protein.*	*Crude Fiber.*	*Other Carbohydrates.*	*Fat or Oil.*
Well headed out.	6.10	11.12	27.85	51.52	3.45
In bloom.....	5.04	7.75	30.33	53.72	3.17
Considerably past bloom.....	4 67	6 66	32.39	53.30	2.98
Ripe.....	4.27	6.16	36 26	51.21	2.08

This table shows that the relative amount of ash, protein, and fat, decreases as the grass grows older, that the percentage of crude fiber increases, while the remaining carbohydrates do not change very much in their relative quantity. The last table tells nothing, however, as to the change in the total amounts of the various ingredients. If we multiply the total quantity of dry substance produced in each case by the figures given for the percentage composition, we can then see what changes are caused in the total quantities of ingredients by the increased age of the grass. This is shown in the next table.

TABLE 3.

	Well headed out.	*In bloom.*	*Considerably past bloom.*	*Ripe.*
Total pounds ash.....	157.6	151.	145 3	148.5
Total albuminoids.....	287.6	232.2	208.6	214.2
Total crude fiber	720.2	906.4	1,024.5	1,261.
Total other carbohydrates	1,332.6	1,610.	1,669.	1,787.
Total fat	89.2	95.	93.4	72.3

Table 3 shows that the carbohydrates increased largely in total quantity, in passing from the first to the last stage of growth. This was especially true of the crude fiber. There is an apparent decrease in total quantity of the ash and albuminoids, which is remarkable.

Two Levelling Devices Used in Ditching.

Mr. Chester Town, Wyoming Co., N. Y., sends us sketches of levels used in ditching. Figure 1 shows a level which consists of a standard and a cross-piece made to swing at the top. To this is suspended a wire bearing a weight. Two pins are put in the cross-pieces near the ends to serve as "sights." To adjust the level, take a sight at some object; then turn the cross-piece one-half way round, and, if it "sights" the same object, it is adjusted.

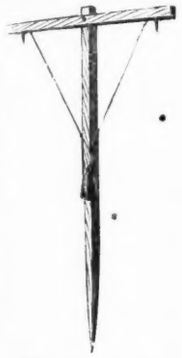


Fig. 1.—A SIMPLE LEVEL.

Figure 2 shows an instrument to widen and level the ditches in places where the plow has left it too narrow. Two pieces of 4 by 4 white oak scantling, 10 feet long, are used. The end of one pole is hewed off and joined to the other at such an angle that the opposite ends shall be as far apart as it is desired to have the ditch widened. Harrow

Fig. 2.—A DITCH WIDENER.

teeth are put in two sides of the scantling—slanting outwards, as shown in the engraving, to strike against the sides of the ditch.

Handling Horses.—Men differ greatly in the amount of work they can get out of a team of horses, and the animals know this as well as the drivers. Some will fret and sweat a team when only drawing an empty wagon, while others will drive the same horses before a heavy load and not wet a hair. This difference is more easily seen than described. Kindness in manner and in tone of voice go a great way towards making the load draw easily. The owner's handling of the reins is frequently far different from that of the hired man. We have seen teams kept poor in flesh by an almost incessant worry from an ill-fitting harness, an inhuman jerking upon the bits, or a frequent and injudicious use of the whip. Boys are not exempt from these strictures. Many teams have had their usefulness impaired by a disregard of the

feelings of the horses. It is not the well fed horse, only, that does the most work, and keeps in the best condition; he must also have a kind master, and be treated with a just regard for equine sensibility.

Handy Boxes for the Barn.

The next thing to a good basket about the barn is a properly made box, and for many purposes boxes are preferable. They are cheaper and will last a long time. Figure 1 represents a box holding about one bushel. Strips are nailed upon two sides near the top, and an oval piece cut out from the under side at the center for handles. Two triangular strips, *p*, *p*, are nailed over two upper corners for guiding the contents of the box when emptying them into a bag out of a smaller vessel. Instead of the triangular corner pieces, a thin board (figure 2, *h*), with an oval opening near the center, serves the same purpose. Boxes like this made from light, tough wood, will last a long time, and are a great convenience about the barn, corn crib, etc.

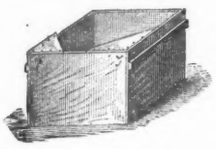


Fig. 1.—BARN BOX.

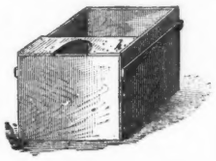


Fig. 2.—ANOTHER FORM.

L. D. S.

An Important Southern Product.

A Former Waste of $33,000,000, to be Utilized—Cotton Seed—What is being Done.

BY HON. J. S. NEWMAN, OF GEORGIA STATE AGRICULTURAL DEPARTMENT.

After numerous experiments and failures, extending back to 1834, the use of Cotton Seed for various purposes, is becoming an important industry. The seed is now purchased by the mills at 15 cents per bushel, or $10 per ton. The first process in their manipulation cleans them of trash, sand, motes, etc.; after this they are passed through a gin, made for the purpose, by which they are stripped of the lint, that was left on them by the plantation gin. An average of 22 lbs. of short lint, called "linters," is obtained from a ton of seed. This sells at from 6½c. to 7c. per lb., and is used in the manufacture of cotton batting. The seeds then go to the hullers, where they are decorticated, and the kernels separated from the hulls. The latter form about one-half of the seed by weight. They are used as fuel for the engines which furnish the power for the mills, and produce an ash which is very rich in potash, yielding, according to recent analysis, as high as 22 per cent of potash. The ashes sell at the mills at $12 per ton. The hulls from a ton of seed yield only 35 lbs. of ashes, which, owing to the complete combustion and the great draft of the furnaces, are very highly concentrated. The kernels, after being steamed, are put into hair-cloth sacks in which they go to the boxes of the hydraulic press, where the oil is extracted, yielding 35 gallons or 262½ lbs. of crude oil per ton (average). This oil sells at the mills at 35c. per gallon. In the process of refining it loses 18 per cent by weight and sells when refined at 55c. to 60c. per gallon.

A ton of seed yields from 700 to 750 lbs. of oil cake, which sells at the mills at $20 per ton. When exported it is generally shipped as cake, but for home consumption is first ground and sold as meal. The present annual consumption of cotton seed by oil mills is only 350,000 tons, or an average of a little more than 6,000 tons per annum to the mill. There are 57 mills, distributed as follows:—Tennessee 10, Miss. 9, Louisiana 9, Texas 9, Ark. 8, Ala. 6, Ga. 2, Mo. 2, S. C. 1, and Ills. 1. There will be many more all over the South ready for the next crop of seed.

The demand for the products of the mills is rapidly increasing and widening in its scope. When thoroughly refined, cotton seed oil is not easily distinguished from the finest olive oil, and I venture the assertion that nine-tenths of the "Olive" Oil sold in the United States is made from cotton seed. At first it was sent to the continent of Europe to be refined, labelled, and returned or distributed to the trade of the world. The voyage across the Atlantic is no longer necessary for its conversion into the finest "Olive" Oil.

The cake finds a ready sale both in this country and Europe as food for live stock. It is being largely used also as a source of Ammonia in commercial fertilizers, and affords the best source available, having from 7 to 8 per cent of Ammonia, besides from 1½ to 2 per cent of Potash, and from 2½ to 3 per cent of Phosphoric Acid. In 1880, according to the statistical report of the U. S. Treasury Department, 6,997,796 gallons of cotton seed oil were exported from the United States. The same year 453,023,225 lbs. of oil cake and 12,142,137 lbs. of cotton seed were exported.

The home demand, however, is so rapidly increasing that it is probable that when the great value of these products is more fully appreciated there will be little surplus for export. The partially refined oil, having a portion of its stearine and margarine retained, is very rapidly supplanting lard in its uses for culinary purposes. Six months ago, with rare exceptions, it was not offered for sale by the family grocers of Atlanta; now nearly all of them not only keep it but find a ready sale for it to their customers generally. After using it for three months, I am convinced that it is destined to expel lard from the tables of the people of the South, and to be used to a large extent elsewhere. It can be used in the preparation of any dish for which lard has been hitherto used, and for some purposes such as frying fish, chicken, etc., is far superior to lard.

The Oil Worthless as a Fertilizer.

The oil is not only entirely valuless as a fertilizer, but is deleterious to the seed, when used for that purpose, by delaying decomposition and hence retarding their availability to the plant. The cotton seed oil-cake meal is in better form for use by the farmer than the whole seed, whether he feeds it to stock, manipulates it with stable manure, or superphosphate, or both, or applies it directly to the soil as a fertilizer. By the manufacture of oil, therefore, that which is entirely wasted when the whole seeds are used as manure, becomes more valuable than the whole seed, while the waste products from the manufacture of the oil are also more valuable than whole seed, no matter in what form used.

Value of the Cotton Seed Crop of the U. S.

The Superintendent of the Census reports the average weight of the bales of the cotton crop of 1879 at 475 lbs. each. As there are two lbs. of seed for every pound of lint, a crop of 6,000,000 bales of cotton implies the production of 950 lbs. of seed per bale—5,700,000,000 lbs., or 190,000,000 bushels, or, as we generally estimate it, 2,850,000 *tons*. According to the last census there were 14,462,431 acres planted in cotton in 1879. Allowing 2 bushels per acre for planting and waste, 432,872 tons would be used for this purpose. Deducting this from the whole crop—2,850,000—leaves 2,417,128 tons to be used as stock food or manure. These, if used by the mills, will yield the various products in quantities and values as follows:—

84,599,480 gallons crude oil @ 35c	$29,609,818
906,423 tons of cake @ $20.00	18,128,460
53,176,816 lbs. linters @ 7c.	3,722,377
42,299 tons ashes @ $12.	507,588
Aggregate value of products	$51,968,243
Deduct cost of 2,417,128 tons of seed @ $10.00 per ton.	$24,171,280
Excess of value of products over cost of seed	$27,796,963

The reader will observe that the value of the crude oil alone exceeds the cost of the seed at present prices, by $1,812,855, and that the gross profits of the mills, after paying for the seed is $27,796,963.

It is evident that the planter is not receiving his share of the profits of the crop. Instead of $10 per ton, the mills can afford to pay $15, and still have a large margin for profit.—At $15 per ton the crop of seed would bring $36,256,920, which would still leave a margin of $15,711,323 for the mills. While the planter could afford, rather than use the whole seed as manure, to exchange the seed for the meal and ashes they would yield, still he is entitled to an equitable share in the profits and should demand such division by insisting upon a better price for his cotton seed. The above facts will aid him in deciding at what price to sell his seed to the mills.

A Device for a Sucking Cow.

Mr. P. Bacon Davis, Tompkins Co., N. Y., has made a device to prevent a cow from drawing her own milk. He sends us the following description: "Cut a piece of tug from an old harness, of sufficient length to go around the cow's nose, about three inches above her mouth. Split the tug out upon one side for about eight inches, and drive wrought nails, so that the heads will rest against the inner surface of the other half of the tug. By means of a strap, which passes over the cow's head,

A DEVICE FOR A SUCKING COW.

this barbed tug will be secured to the bridge of her nose. The moment she attempts to draw her milk, the points of the nails will come in contact with her udder, and thus be a complete preventive."—The construction of this device is easily seen from the engraving.

Some Practical Points in Peach Culture.

[Mr. W. D. Eversole, Hunterdon Co., N. J., gives his methods in the orchard culture of the Peach, which we append to some notes on what we may call the home culture of this fruit. Why should not every farm produce all the peaches the farmer's family can consume, with a supply to can and to dry, that will last until peaches come again? We know of no reason, except that there is a general impression that peaches will not thrive here and there. "The trees give but a crop or two, and then die," is the frequent complaint. One great obstacle to the general culture of the peach is the notion that it must last and bear for a long series of years, like an apple tree. A very sensible farmer in New England said to us many years ago: "If I can get one crop from my peaches, the value of the wood pays me for raising the trees, the fruit is clear profit, and peaches pay better than corn." The farmer will consider the first cost of the trees. The peach produces better fruit from the seed than any other tree, and if a farmer, or other, can not do better, let him raise seedlings, saving the stones from the best peaches. But he generally *can* do better, and when within reach of nurseries he should purchase budded trees, and be sure of good varieties. Most nurseries offer budded trees at 15 to 25 cts each, at retail, for well known good kinds; of course novelties cost more, but good enough trees can be had at these prices, and by the hundred, trees in many places may be had at half these rates. Good corn land will produce good peaches, and in any locality near a market, such as a manufacturing village, the excess of the first crop, beyond the family supply, will pay for every outlay. Every farmer should set out 10 to 20 peach trees for his home use. The treatment given by our correspondent will apply to a few trees as well as to an orchard.—EDS.]

Mr. Eversole says:—"In planting the trees, I cut off all mutilated roots, and shorten the tap-root to two or three inches. After setting out—[We call particular attention to this point.—EDS.]—I cut off *all branches*, and cut back the top to about waist high, *leaving nothing* but a straight naked stick. Buds will soon appear upon this, and after the sprouts from them have well started, I rub out all but three or four of the uppermost, with which to form the top, or head, of the tree. These branches, never more than five, should be well cut back. When the trees are four or five years old, I cut them back quite severely so soon as the crop is off. My time for "worming" the trees is the first part of June each year. After planting the trees, corn is grown between the rows for two years, then buckwheat until bearing commences, using 200 lbs. of bone to the acre with the buckwheat. When bearing begins I continue the use of the bone, or phosphate, and have the finest colored peaches that are sent from this station.

AS TO RETURNS.—Mr. E. has been engaged in peach culture for 16 years; he cuts back his trees so severely that they do not bear until five years old, but he thinks that by this course they continue longer in bearing. His second orchard, of about 1,200 trees, on eight acres, in 1879 yielded 2,100 baskets, from which the net returns from New York, were $1,475. In 1880 the yield was 1,800 baskets, the returns being $1,400. In 1881, for 1,601 baskets, the returns were $1,714. The aggregate of the three crops was $4,589, from which the cost of picking and the bone applied, $165, being deducted, leaves a profit of $4,424. I think peach culture pays me, and have an orchard of 1,225 trees, now three years old, coming on, and I shall this spring set another. The reason that so few orchards pay is, they are not properly cared for."

English Beans—What are They Like?

In a note about beans of different kinds given last month, English Beans were mentioned as different from those in common cultivation with us. Inquiries show that

PLANT, POD, AND SEED OF THE ENGLISH BEAN.

these beans are less known than we supposed, and to gratify those who ask about them, we give an engraving of one of the dwarf kinds popular abroad. We do not advise their trial here save in far nothern localities or those near the sea where the atmosphere is moist and cool. Indeed, our beans are so much better than these, that it is only those who knew them "at home" who would care to grow them. We at one time had an Englishman as a gardener who was sure he could grow these beans, so we furnished the seed, and he carefully drilled in each one at the proper depth. Before the plants were in bloom, they were so covered with black lice that the green of the foliage was scarcely visible. This bean belongs to a different genus from our common kind. It produces a straight, stout, upright stem, or in the dwarf variety shown, a stem with a few branches. The flowers are produced in clusters in the axils of the leaves. The large upright pods, and the shape of the beans, are shown in the engraving. In England over 20 varieties are known, some of which, as "horse beans," are grown as a farm crop for feeding domestic animals. When beans are mentioned in English agricultural works and journals, this is the kind referred to. What are known as beans in this country are there called Kidney Beans.

Gardening with Covered Soil.

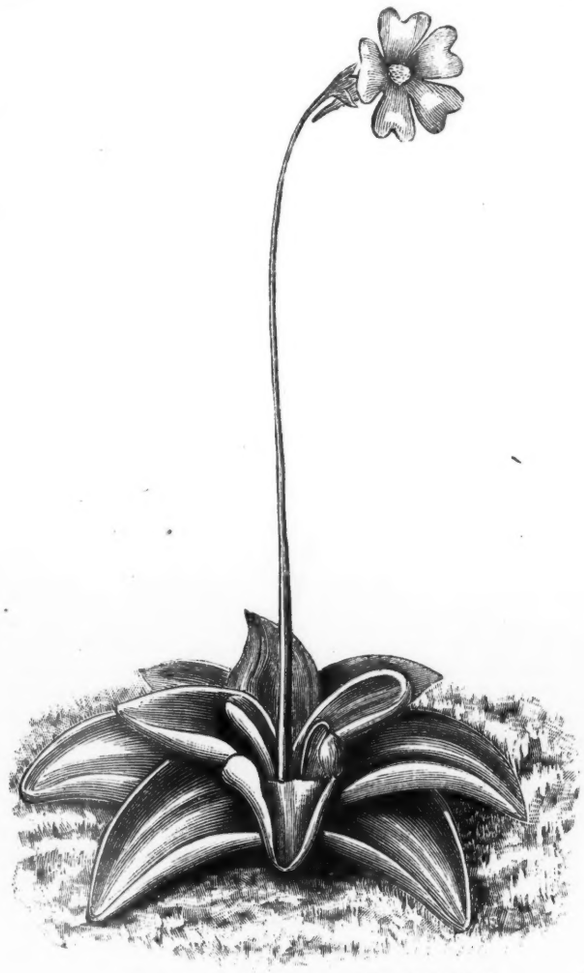
Some interesting experiments have been made in one of the public gardens in France, in what may be termed excessive mulching—that is covering the soil with some material, to completely prevent evaporation. Ordinary mulching with straw, chips, small stones, and other materials, is often used with us to keep down weeds and preserve the moisture of the soil, and is largely practised in strawberry culture. In Europe tiles have long been employed for strawberry beds. These tiles are in pairs, with a semicircular piece cut from one side of each; when put together they surround the plant completely, and the bed is paved with tiles which have circular openings for the plants. We had heard of some experiments in this country with boards similarly arranged, which are reported to have been successful. Many years ago we passed a few hours at Key West, Fla., and noticed that the most flourishing of the small flower gardens were wonderfully clean. An examination showed that the whole surface of the gardens or front yards, was covered with a layer of mortar or cement of some kind, perhaps three inches thick, leaving, of course, sufficient openings around each bush, etc. Here were roses and other flowering shrubs in great perfection under a tropical sun, while the "soil" was swept as clean as a floor. The French gardener's experiments were with market garden crops—carrots, cabbages, lettuce, etc. Among the articles used to cover the soil, was sheet zinc of two kinds, mentioned as white and black, but the difference not described. He shows that in most cases he obtained a largely increased product from the covered as compared with the uncovered soil, in some cases more than double. In seeking a cheaper covering material than zinc, boards were tried with fair success, but that which he thinks will be after all the cheapest, is parchment paper. Many of our readers are no doubt aware, that when unsized paper is dipped for a few seconds in Oil of Vitriol of the proper strength, and then soaked in water to remove the acid, the paper is changed in appearance and texture; it becomes tough, water-proof, and greatly resembles parchment. Parchment paper of the finer kinds, is now a regular article of manufacture. M. Nanot, the gardener referred to, proposes to use old newspapers thus "parchmentized," as the cheapest material with which to cover the soil. He sums up the advantages of his method as producing: 1st—greater rapidity of growth. 2—Lessening of the enormous cost of watering. 3—Avoidance of hard work in weeding, and finally that he gets double the crops that he can from uncovered soil. While we do not expect our gardeners to at once cover their soil with parchment paper, this matter may offer some useful suggestions.

A Flower Bed for Use.—In every garden, no matter how much may be done in the way of ornament, there should be somewhere, a bed from which the flower-lovers of the household can feel free to cut as they please. Flowers in masses, and ribbon lines, or as specimen plants, are well, but it is much better to have a place where those who really love flowers can go and cut a handful with no gardener to prevent. Such a bed should have, of all things, an abundance of the best kind of mignonette, and if confined to annuals, the candy tufts, white and crim-

son, sweet alyssum, sweet peas, stocks, China asters, the annual pinks, and a host of others. Never mind about the arrangement, so that there will be flowers, and a plenty of them, so that all the household can "cut and come again," without feeling that they trespass.

The Butterworts—Pinguicula.

In various wet places from Western New York, southward, are to be found several species of Butterworts. They have rather fleshy leaves, an inch or two long, clustered in rosettes, from which arise the flower stalks, three inches to a foot high, each bearing a single yellow or purple flower, an inch or more wide; the corolla is more or less bell-shaped, lobed at the margin and terminating at the base in a spur. Several species are found in Europe, and are recommended in garden-works there, for planting in moist places. Last year a friend brought us from North Carolina, several plants of the Yellow Butterwort, (*Pinguicula lutea*); these were placed in a pan of soil mixed largely with sphagnum moss, and placed in a cool greenhouse, where they were almost forgotten. This spring they asserted their claims to attention by a profusion of flowers of the most pleasing tint of pale yellow, and quite as interesting as many of the costly exotics. We hope to procure some of the purple-flowered species, of which there are several. They are charming plants for a cool greenhouse, or if one has a natural or artificial bog, they may be planted there. They are said to reproduce themselves abundantly from self-sown seeds. The name Butterwort was given to the European species on account of the greasy feel of the leaves, and the botanical name, *Pinguicula*, from the Latin, *Pinguis*, "fat," was given for the same reason. The greasy feeling of the leaves is due to an exudation from the glandular hairs found in abundance upon the surface of the leaves. The experiments of Darwin show that the Pinguiculas belong to the "Insectivorous Plants." His work with that title, details numerous experiments, in which the placing of insects, pieces of meat, etc., on the leaves, caused their edges to incurve, and produce a greatly increased secretion in the minute glands on the surface.



THE YELLOW BUTTERWORT (*Pinguicula lutea*).

THE CAUCASIAN PYRETHRUM (*P. roseum*).

Insect Powder—Pyrethrum.

For more than half a century several species and varieties of *Pyrethrum* have been cultivated as ornamental plants. Some 20 or 30 years ago, "Persian Insect Powder" was sold in small packages as a secret preparation for the destruction of insects, especially cockroaches. It was long before these two, the plants of the garden and those which furnished the insecticide were known to be closely related, if not identical plants. It appears that there are villages in the Caucasus where the chief occupation of the inhabitants has been for a long time the collecting and preparing for export the flowers of *Pyrethrum*. As these people maintained a monopoly of this "Insect Powder," they naturally resisted all attempts to send seeds abroad, and it has been with much difficulty that Prof. C. V. Riley, formerly of the U. S. Entomological Commission, and now the Entomologist of the Department of Agriculture, has been able to procure them. Commissioner of Agriculture Loring has done good service in continuing the efforts of the Entomological Commission to introduce the seeds of these plants, and in sending them for trial to various parts of the country. The seeds sent out by the Department are of the Caucasian (*P. roseum*), and of the Dalmatian (*P. cinerariæfolium*) Pyrethrum. The engraving shows the flower head, and the general form of the leaves of *P. roseum*. Both plants are herbaceous perennials, and, as usual with such plants, do not flower until the second year of their growth. As those who receive the seeds will also have directions for their treatment, we need only say that they require such care as is needed by other seeds that are somewhat slow of germination. While the directions suggest sowing them in a well-prepared bed, we think that the majority will succeed better if they sow the seeds in boxes and treat them by Mr. Peter Henderson's method as described by us in January last (page 6). Ordinary store boxes, such as starch, soap, and other articles are packed in, usually make two seed boxes by cutting them in two, using the top for the bottom of one of the halves. These boxes, 3 or 4 inches deep, are most

useful for raising seedlings, whether in the green-house, the hot-bed or in the window. In the method referred to, a layer of good loam is put into the box and pressed down level and moderately firm. Sphagnum, or common packing moss that has been well dried, is sifted through a wire sieve that will make it about as fine as ordinary sawdust. A half-inch layer of dried moss of this kind is sifted over the soil. Put upon this a three-fourths inch layer of soil, and upon this the seeds are to be evenly sown. They should be pressed down gently by a board, and then enough fine moss sifted on to cover them well, finally watering from a watering-pot with a fine rose. We mention this in detail, because we think that many who may try Pyrethrum seeds in the open ground may fail, while seeds thus treated will grow under these conditions if at all. All that needs to be done is to keep the moss just damp to the touch. When the young seedlings are large enough to handle, they should be transplanted to good garden soil and set about a foot apart. No product is to be expected the first year, but the plants should be kept free from weeds. Though the plants are no doubt perfectly hardy, so far as the effects of cold are concerned, it will be well at the approach of winter to cover the soil with marsh hay or other litter to keep them from being drawn out by frequent freezing and thawing. The seeds of the double *P. roseum* are sold by seedsmen generally; they are among the most ornamental perennial flowers, and while we have no positive knowledge that they are so valuable as insecticides as the single, the probability is that they are. It has been stated that the common "May-weed," so common along the roadsides (*Anthemis Cotula*), is, when dried and powdered, very poisonous to insects. If any of our readers have experimented with this, we shall be glad to hear from them.

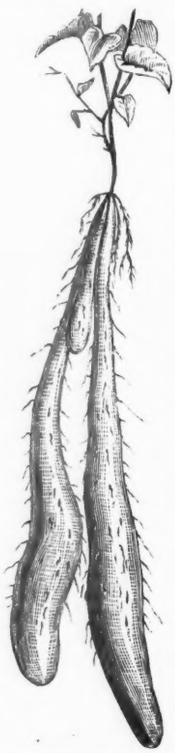
Cabbages and Cabbage Stems.

None of our common vegetables present such a wonderful variety of forms as the Cabbage. Aside from the heading kinds, familiar to all, there are several sorts which do not make solid heads, but their leaves, when rendered tender by frost, are valued by many as Kale or "German Greens." Aside from their leafy portions or heads, there are some varieties of the cabbage especially valued for their stems. Indeed, the stems of the common cabbage may be made of value if the cabbages have been preserved by the old method of setting them in trenches and covering with straw and boards, or by planting them upright in the cellar of some out-building. The usual method at present is, to lay the cabbages head down and roots up, and to cover the heads with earth. This, while it preserves the heads, spoils the stumps, and those who follow the older plan of setting the cabbages, root downwards in trenches, have the stumps in good condition in spring. When cabbage stumps are well preserved and set out early in the garden, they will give at least two good cuttings of "sprouts," which will be found most acceptable "greens"—indeed, so valuable, that in a private garden it is worth while to take the extra trouble required to preserve the stumps, as well as the heads of the cabbage. We have referred to the different forms assumed by the leafy portion, or head of the cabbage; the extreme forms of the stem are equally striking. In noticing some not generally known vegetables last month, Kohl-rabi—sometimes called Turnip-cabbage, was mentioned. As this is but little known outside of city markets, we give an engraving of it. It is simply a cabbage which does not form a head, but stores up the nutriment that other cabbages place in a large bud at the top of the stem, in the stem itself, which is swollen out to form a globular bulb for the purpose. The stories about its being a cross between a cauliflower and a turnip are all nonsense. It is only a variety of cabbage that makes a globular stem. As this stem grows rapidly, it is, if taken early enough, tender and very delicious to those who like cabbages, for it is much more like a cabbage than a turnip. When it gets old, it is stringy, and while not fit for the table is excellent for domestic animals. In England it is, on some soils, grown in preference to turnips, as it is free from the insects that attack the turnip crop. What a wonderful difference between the Kohl-rabi, with its stem at least as thick as it is high, and that cabbage which has been grown for centuries on the Island of Jersey, where the influence of climate and soil has been to produce tall stems. These stems are so long and so useful in various ways, that an English journal some years ago had an article on "Cabbage Timber." The visitor to the Island of Jersey sees on every place a patch of these strange cabbages, with stems 6 to 8 feet or more high. The leaves are used for packing butter for market and feeding pigs, while the stems are put to various uses. In the principal town, St. Heliers, the sign, "Maker of Cabbage Canes," is quite common, and few persons visit that charming island without taking away one or more walking sticks made from cabbage stems. Sometimes the stems grow to the hight of 10 or 12 feet, when they are used as rafters to sheds, etc. It is said that one of these cabbages had grown to the hight of 16 feet, was left for seed, and that a magpie made its nest in the branches which sprung from it in the spring.

KOHL-RABI OR TURNIP CABBAGE.

The Chinese Yam (*Dioscorea Batatas*).

The history of this Yam is interesting as showing how the real merits of a plant may be obscured by extravagant claims made concerning it. About 30 years ago the French Consul in China sent to the *Jardin des Plantes*, in Paris, some tubers of a Yam, *Dioscorea Batatas*, which was used for food in China. It was at the time when the rot threatened to put an end to potato culture, and every plant promising to be a useful substitute was regarded with interest. So soon as the Yam had sufficiently multiplied, the eminent director of the Paris Garden, Decaisne, recently deceased, sent to this country to his friend, the late Dr. Torrey, a small tuber of this precious plant. We well recollect the little tuber, packed in a box of cotton, the very beginning of the Chinese Yam in America. It was a miserable little thing, not larger than one's finger. The good Dr. Torrey was a botanist, but not a cultivator, and doing what he thought was for the best, sent this first tuber to a nurseryman of his acquaintance near New York City. He made a most unfortunate choice, for soon after the recipient advertised the plant and set forth its merits most "extravagantly."



THE CHINESE YAM.

The claims made as to its value were so far beyond all possibility that the *American Agriculturist* took an active part in showing up their absurdity and treated, not the plant, but the accounts given of it, with the ridicule they deserved. Yet, after more than a quarter of a century, the Chinese Yam is still offered in the catalogues, under its proper name, and sometimes there appears a sensational advertisement of parties who offer it as the "Cinnamon Vine." Several recent inquiries make it proper to describe the plant. It is a perfectly hardy climber, which, if given support, will run to the hight of 15 or 20 feet, producing an abundance of dark green leaves, and small spikes of whitish fragrant flowers. Without reference to anything else, the plant has a real value as an ornamental climber. It produces a large, fleshy tuber, or root, 18 to 24 inches or more long; near the surface it is scarcely an inch through, but enlarges as it goes downward to a diameter of three inches or more. If to this peculiar shape is added the fact that the root is as brittle as glass, it will be seen that whatever value it may have as food, the difficulty of digging it is such as to make it practically unavailable as a crop. To dig down two feet to secure a root crop, is a formidable task, and the peculiar shape and brittleness of the Yam prevents all pulling; it must be dug from the very bottom. As a table vegetable it is very acceptable, either boiled or fried. Some friends of ours keep a patch of it in their gardens for the sake of the occasional variety it affords. It is not worth cultivating as a crop, but it may be put in some corner as a curiosity, and if one is in need of it, he can find exercise in endeavoring to dig up a few roots for dinner. A friend once suggested, with a view to future possibilities, that this Yam should be planted in waste places all over the country, so that, should a famine occur, there might be everywhere an underground store of available food. The plant is propagated by cuttings of the upper and smaller portion of the root, but especially by little bulblets, which are about the size of small peas, and produced abundantly in the axils of the leaves. These bulblets are sold by seedsmen generally, and they sometimes offer small roots. As an ornamental climber, the Chinese Yam is worth growing, but not valuable for a food crop.

Taking Produce to Market.

We have shown various reasons why every farmer should have a good garden to supply his own family with a variety of vegetables the year round. To these we now add the fact that in many places the garden may be a source of profit. If the farm is within a few miles of a town or village, especially if a manufacturing place where many laborers are employed, there will always be a ready sale for all the surplus of the garden at profitable prices. In such localities an excess beyond all probable wants of the family should be provided for in sowing and planting. To get the best returns some care must be observed in preparing the articles for market. The market-gardeners understand how far appearance goes in selling their produce, and take great pains to put up everything in attractive form. A farmer in going to a village may pull up a half bushel each of beets, carrots, or onions, and throw them into his wagon body; if he sells them at all, the returns will be small. Let him prepare the night before; pull the same number of these vegetables and take them to a shed. Wash each kind separately in a tub of water, cut off all long roots and needless leaves, and tie them in bunches of 3, 6, or more, according to their size. We are sure that the vegetables thus treated will bring at least three times as much as the same if sold loose and unwashed. So with whatever else is offered for sale. Store boxes can be had for little or nothing. They may be easily cut down to hold pecks and half pecks, and be used for peas, beans, and other things sold by measure. Some of these cut in two to form trays 2 or 3 inches deep, may be used for cucumbers, tomatoes, etc. A little care in the use of freshly cut grass, cabbage, rhubarb, or other large leaves, upon which to lay or with which to cover vegetables, will add much to their neat appearance, and will pay well for the trouble.

Kill the Potato "Bugs."—It is important to destroy the first brood of potato beetles. This brood comes from the ground in early spring, and the beetles soon lay their orange-colored eggs in clusters on the under side of potato leaves. These eggs are readily found by turning up the foliage with a hoe handle, and picked off and destroyed. If this is omitted, the larvæ, or "grubs," soon hatch out, and begin their rapid destruction. Poison in some form must now be used. The two leading insecticides are Paris Green and London Purple. Both are arsenic compounds. The "green" is a manufactured article while the "purple" is a by-product or refuse compound from the dye factories and therefore cheaper. These substances are used either dry or wet. In the former they are mixed with 30 to 50 times their bulk of flour or plaster, and dusted or sifted on—best while the dew is on, or soon after a rain, that the wet foliage may retain the substance. In the wet method, which is now generally preferred, the poison is stirred in water—a large tablespoonful or so to the pailful—and applied through a sprinkler, stirring it very frequently as it does not dissolve. The "bugs" have been in most potato growing regions so long that a full discussion of the subject is unnecessary. It is important to remember that these arsenic compounds are deadly poisons, and to be used with great caution. Any "green" or "purple"—it is fortunate that they have marked colors—in the house, should be put where no one can use them by mistake, and out of reach of children.

About Savoy Cabbages.

An Englishman once wrote a work "On things not generally known." Were we to write such a work, it should begin with Savoy Cabbages. Our farmers and others raise cabbages year after year, and very good cabbages of their kind. But the Savoys are of a so much better sort when they come to the table, we are sure that, when once tried, very few would grow any other. A Savoy

A SAVOY CABBAGE.

Cabbage is as much superior to the common hard-headed kinds as the best cultivated grape is superior to the common fox-grape of the woods. Indeed, the English works on Gardening treat of Cabbages under one head and Savoys under another, as if the two were entirely different vegetables. The Savoys are a distinct race of cabbages; their leaves are always strongly *bullated*, as the botanists would say, but "blistered" will perhaps describe the peculiarly wrinkled character of the leaves. The heads are never very hard, but the loose outer leaves cook tender. The engraving gives the general appearance of this race of cabbages. When our garden experience commenced, there were various other cabbages and "The Savoy." Now the catalogues give half a dozen varieties of Savoys, beginning with the "Early Ulm," and ending with the "Drumhead Savoy." We do a good service to those who do not know this class of cabbages to advise them not to make a sudden change from old and approved kinds, but to sow among their late cabbage seeds a paper of the "Drumhead Savoy." We are sure when enjoying a farmer's "boiled dinner" next winter, they will thank us for the suggestion.

Golden Bell, or Forsythia.—We once used some stems of this as stakes for a house plant, and they soon came into full bloom. By placing cuttings of this very common shrub in water, the bright yellow flowers may be had in mid-winter. The Leather-leaf (*Cassandra calyculata*), very common in northern swamps and cranberry bogs, will bloom finely when thus treated.

Melons and their Enemies.

Each succeeding year, raising a good crop of melons seems more difficult, largely due to the increase of insect enemies. Last year the drouth cut off the crop over a wide area, but in seasons of sufficient rain the melons are far less abundant than formerly. Though some insects attack the vine after its growth, and even injure the fruit itself, the greatest difficulty is with those which beset the very young plant before it is fairly established and vigorous, and it remains weakly the whole season. The first step in melon culture is to get strong young plants. In field culture, growers put in a great abundance of seed, trusting that a sufficient number of plants may escape, by the aid of dusting with lime, to make a stand. In the home garden, where every care is taken to forward Tomato plants, similar care might be profitably given to the melon. The method advised last month, p. 142, for cucumbers—sowing the seeds upon inverted sods, will also answer for melons; or the seeds may be sown in pots of light rich soil. The object, thus late in the season, is not so much to hasten the plants, though covering on cool nights will aid in this, but to have them where they can be cared for and kept free from insects. A free dusting of air-slaked lime, or a mixture of wood ashes and land plaster, will aid in keeping off insects. We have not tried the Insect Powder (*Pyrethrum*, described elsewhere), but do not doubt it would be useful. The frames covered with mosquito net, mentioned last month, to put over the plants after they are set in the open ground, are well worth the little trouble required to make them. Such frames, covered with one pane of glass each hill, will do much to forward melons. The great point is to get strong plants as soon as possible before the later insects attack them, and if the hills are not well manured, a little guano worked in with the soil will be of much service. After the plants are well established and promise a crop, the White Grub, or the Squash-borer, may put a sudden end to some of them. If a vine suddenly wilts, dig it up and find the White Grub at the root before it goes to another plant. Covering a few inches of the lower part of the stem with earth has been advised to prevent the borer from depositing its eggs.

The varieties of melons are numerous, and the catalogues offer new ones every year. Some of the old kinds are of the highest quality, if they can be had true to name, but melon seeds sometimes get badly mixed. Among the green-fleshed sorts, "Ward's Nectar" has long been our standard of excellence. "Cassaba" is very large and good. Of those with salmon-colored flesh, "Surprise" will convince those who think melons of that color are not good, that here is an exception—indeed, it is of the highest quality. "Christiana," of the same color, is one of the earliest. This, for some years, had so badly deteriorated as to be valueless. Within a short time some New England growers have found pure seed and restored it to its original excellence. If one raises several kinds of melons in his garden, he cannot depend upon his own seed. It may be pure, but more frequently will produce a crop of mongrels. Melon seed will keep good, if not improve, for 10 years or more, and when one gets hold of a good sort it is well to lay in a stock of seeds to last for several years.

THE HOUSEHOLD.

☞ *For other Household Items see "Basket" pages.*

Rain-water Strainer.

BY L. D. SNOOK.

During every brisk shower the roofs of buildings are washed clean, and if the water is allowed to flow directly into the cistern, much dust, dirt, leaves, etc., is carried with it to render the water impure. This is particularly noticeable with shingled roofs. This can be avoided by having the inlet pipe so arranged that the first barrel or so of

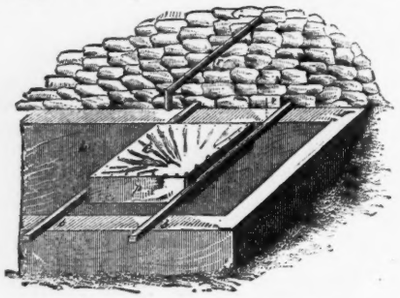


Fig. 1.—STRAINER FOR CISTERN.

water will run to waste, and the balance be conducted to the cistern, and this without attention during each shower. Figure 1 shows a portable strainer, consisting of a box, *p*, three feet square and four inches deep. A bit of coarse cloth is tacked to the upper edge; this will allow water to pass quite rapidly, and should be six inches lower at the center than at the sides. Supports or handles, *b*, *b*, are attached to the sides, the ends of which rest upon the walls of the cistern, *h*. The inlet pipe *r*, discharges immediately upon the cloth *c*, which retains all leaves, coarse dirt, etc. This cloth should be cleaned three or four times per year, which is easily done by placing the box *p*, bottom up and dashing water upon the cloth. The strainer described is for a cistern located in the cellar and easily accessible. The strainer shown in fig. 2, is for use in the side pipe. The manner of constructing is fully shown in the engraving. It is best located about five feet from the ground, or within easy reach. The box *l* is 18 inches square and 6 inches deep. The strainer should be depressed about one foot that it may not overflow during heavy showers. The box should be easily removed for cleaning the strainer, etc. In either plan to prevent the water from dashing too violently upon the cloth it should fall upon a sieve or something to retard the fall and divide the stream.

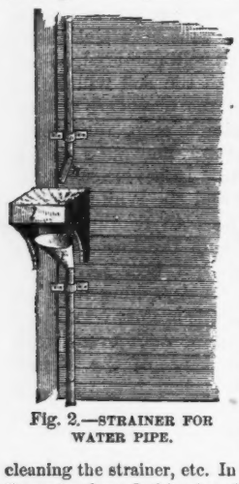


Fig. 2.—STRAINER FOR WATER PIPE.

Something about Pancakes.—Some people suppose that pancakes are always unhealthful, but I think, if well made, they are more wholesome than either sour or heavy bread. It is often said that they are just as good without as with eggs, but I don't think so. Made without eggs, they are very apt to be either "soggy" as they cool, or too thick to be enjoyable. When eggs are plentiful, allow one egg to each cup of "wetting," usually sour milk or sour buttermilk. When really sour, milk does not keep increasing in sourness, though it soon becomes bitter. Each cup of really sour milk or buttermilk, requires half a level teaspoonful of soda carefully dissolved before mixing it with the batter. White flour alone is not so good as genuine graham, or a part corn-meal (well scalded), and part white flour. Old bread soaked in sweet milk, or in sour milk with the soda added, or cold hominy, or oatmeal, or Indian mush, all work into good pancakes. Make the batter just thin enough to spread easily upon the griddle, when dropped from the spoon. Grease the griddle lightly, and avoid a "smudge." F. E. R.

Conveniences in Houses.

Mrs. Anna Woodruff, of Blue Earth Co., Minn., sends us a number of suggestions on the above subject, which we summarize in part: There are many little conveniences that may be added to almost any house plan, at very trifling expense, which are not thought of by architects or builders, who, of course, cannot appreciate these things as well as the practical house-keeper. But if they are not provided when a house is built, they seldom get into it afterwards. Take, for example, the excellent prize-house plan in the *American Agriculturist* for March (the reader will do well to have the plans in hand, when reading what follows.):

At very small cost the omitted corner portion, marked "Porch," could be roofed, enclosed, and floored. There would be no additional walls needed, as those already there would more than cover the room, if set on the *outside* of the Porch. This would give an additional room, 6 by 10, of far more value than an outside Porch, as it is now. This gives space enough for another bed-room, or a store-room, or a children's play-room, heated from the kitchen; or if not wanted for these, it would be valuable as a wood or fuel room. If this "Porch" space be thus enclosed as a room, the entrance door could be put on the other, the main side of which should front the street. With only the expense of two posts, a few boards for floor, and a few shingles for a roof, this door can have an open Porch; or its sides can be enclosed with open work, by using strips the width of common lath, and these may be covered with some ornamental vines—the wild woodbine transplanted; or plant seeds of the wild cucumber, or morning glory, or climbing nasturtium (*Tropæolum*), or bulbs of the Madeira vine, not forgetting a few sweet peas. All the above involves very little additional expense. The door and casings were estimated for in the plan as given.

On the approach of winter, the lattice can be covered inside with tight boards, and a storm-door close the front, while inside of it there may be hooks for hats, overcoats, and umbrellas, with a box seat and hinged covers for rubbers, overshoes, etc., and a broom be hung there for brushing snow from the feet, and a coarse mat for muddy weather; also a scraper of wood, or any bit of iron, on the steps. These will save much litter from the living room, or "parlor." A similar but larger Porch at the back door, with box seats or shelves on each side, will cost little, and be a wonderful convenience. It will serve as a wash-room in hot weather, using the benches or box covers for setting on tubs, pails, baskets, men's wash-basins, etc. When the vines are large enough to shade it, this rear piazza will be a cool place for resting, for lunches, etc., and if enclosed by boards in winter, as described for the front Porch, it will keep out cold, and serve many useful purposes.

In digging the cellar, throw the earth where the sides need banking up, and put sods around the edges of the levelled earth These will make the banking up firm and permanent, and flowers may be planted on little beds in it, to be watered with the fertilizing waste water from the house.

As the chimney is at the end or corner of the kitchen furthest from the door, the stove pipe should be long enough to allow the stove to be set near the pantry, and thus daily save hundreds of steps. Or better still, run the pipe p through the ceiling of the room, with a tin or earthenware collar or thimble, and carry it along the upper part of the chamber to the chimney. This will warm the chamber also.

Let the cellar extend under the pantry, and omit the floor boards under the "dressers," substituting open wire netting, or strips of wood, with simple doors in front. This will form a cool closet for food, and save many weary steps up and down the cellar stairs....There is some space in the stairway, between the chamber and the rear roof, where stationary drawers or boxes may be put in. If the main Porch be filled out as a room, as first suggested above, there will be space over it for storing, to be reached by a small door from the front bed-room, as suggested for the rear portion, in describing the house.

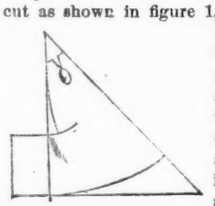
In each chamber a corner closet, with clothes hooks, and shelves above them, can be cheaply made by the addition of a simple door, and a board on each side; or nail strips across, and hang curtains in front, as a protection to garments.

But whatever else is omitted, do not omit a sink with a waste-pipe, near, or even in the pantry, and have a cistern, with a pump by the sink. The first cost is very small; the saving of work, of steps, of strength, of health, will repay the cost many times every year.

All the above improvements might not cost $25, while they would add very greatly to the roominess, convenience, and comfort of the house.

Children's Aprons.

Aprons for a child from two to five years old, cut as shown in figure 1, are easily made. The fabric is folded so as to bring the bias down the front of the apron, and the straight edges at the back. A small gore is cut out on the shoulders and long sleeves are set in the arm size. There are no seams but the one on the shoulder. The apron is faced with a straight piece of fabric, and is closed in the back with buttons and button-holes, fig. 2. Strings sewed under the arms and tied at the back, make it more "dressy," fig. 3. If cut as for an apron, except that it is buttoned in front, the pattern makes the comfortable little wrapper illustrated in figure 4. For summer it is cool and no



1.—PLAN FOR CUTTING.

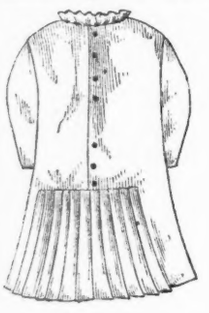


Fig. 2.—FRONT OF APRON.

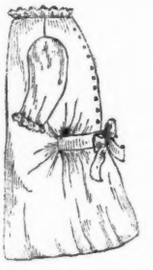


Fig. 3.—SIDE OF APRON.

trouble to iron. For winter it should be made double; old calico makes a good lining. The same pattern can be used for dresses by adding to the skirt the extra material indicated by the dotted line. The piece shown by the dotted line above the waist line, should be trimmed out, or the lower part of the waist will be too full. The waist of the dress should be cut very long; pleat the top of the skirt to fit and sew together in a seam: close the waist with buttons. The extra fullness can be gathered, and a narrow flounce put around the bottom to lengthen it if necessary. Striped goods do not look well cut by this pattern, but for plain fabrics, or those with even checks or small spots, it is all that could be desired. MRS. BUSYHAND.

Fig. 4. SUMMER WRAPPER.

Christmas and Other Winter Decorations—Begin Now.

When the time is at hand to prepare for Christmas and other holiday decorations, whether in the church, the sunday school, or the home, how many have wished that they had made preparation last summer? The things most heeded then, besides the evergreens that are at hand, are, dried ferns and grasses, and those bright persistent flowers known as "Everlasting." The ferns and grasses we may speak of later, but the time for the everlasting flowers, if they are wanted for winter, is *now*. There are so many plants the flowers of which have a papery texture, that allows them to keep their form and color when dried, that some seedsmen give in their catalogues a separate list of the seeds of "Everlasting Flowers." It may be said of these, that they are mostly from tropical countries, and that their seeds should not be sown too early, as the plants succeed best in our hot summer weather.

It is very easy for those who grow flowers at all, to have an abundant supply of these "Everlastings," if they observe a few precautions. It is of the first importance to cut the flowers just as they are about to open, before they are in full bloom; otherwise they may fall apart. The next point is, to tie them in small clusters, and hang them in a room free from dust, where they will dry thoroughly. When quite dry they may be laid away on shelves or in boxes, until wanted for use, but not packed so that they will crush one another out of shape. A vast number of these flowers are imported from Europe, and meet with a ready sale as the holidays approach, but the majority of these, indeed all the best of them, can be grown in an ordinary garden. We enumerate, alphabetically, the most desirable, the seeds of which are to be had of the principal seedsmen. *Acroclinium roseum*, and *album*, among the best. *Ammobium alatum*, small globular heads of white flowers. *Gomphrena globosa*, sometimes called "Bachelor's Buttons," and "Globe Amaranth." The globular heads, white, pink, red and yellow, should be cut very early. *Helichrysum bracteatum*, and others; these are the best known "Eternal Flowers," and the catalogues give about a dozen varieties, from white and yellow, to dark crimson. Their flowers are the largest and most showy of all. *Helipterum Sanfordi* has large clusters of minute yellow flowers. *Rhodanthe maculata, Manglesii*, and varieties, are the most delicate of all. The flowers are small, but so beautiful, that they are worth the extra care that they may require. The *Xeranthemums*, of which there are several, are good white flowers. The seeds of all are best sown in boxes, where the plants can be cared for until large enough to set out in the garden. Of those named, the *Helichrysums* are the strongest growers, and need the most room, at least two feet apart. The seeds of the *Gomphrenas* or "Globe Amaranths," are often slow to start, and it is better to pour scalding water over them and allow it to cool, before sowing.

Abusing The Sense of Taste.

BY A MINNESOTA HOUSEKEEPER.

The sense of taste, like all others, is capable of cultivation, and may add greatly to our pleasures, while also serving a useful purpose, and yet no other one of our five senses is more frequently made to minister to human degradation. The fault begins in childhood—even in infancy—and here is the most fruitful source of the intemperance that devastates the land. The notion is very common that stimulants are craved by every one. Those who assert this, are probably themselves the victims of stimulants, and thus misjudge the desire for them to be universal. But thousands can testify that no such craving is even consciously felt. Much observation and inquiry has convinced me, that this craving is not natural, that it does not exist when the stomach is supplied habitually with healthful nourishment and with that alone. This mistake is the result of another erroneous notion, viz: that children naturally crave sugar, candy, pickles, and other artificial sweets and acids. Human stomachs, and the tastes that should serve them, are usually *led* astray, almost from birth. The infant is fed to supply it with the nourishment required for its growth, health, and comfort. It is a duty and a privilege to make that food as agreeable to the taste as we can, without interfering with health, comfort, or growth. It has been proved over and over again, in private experience, that babies and children well nourished on plain food, are healthy and happy without sugar, except as they get it in their natural vegetable and animal food. They get all the acids they need in the same way, especially from a moderate amount of fruit, and their teeth are sound, and their spirits lively. Supply the same well-fed children with candies, at first they care little for them, but a craving is easily cultivated, and the more they have, the more they want, unless made so sick by overeating of sweets, as to associate them with the pain they have imposed. This seldom happens. Following the craving for sweets, or excessive eating of fats, thus cultivated, comes the morbid desire for pickles. Cloyed and wearied by concentrated and indigestible substances, the appetite refuses plain food and nourishment, and the stomach is too weak and weary to carry on its natural healthful work. Of course it needs, first rest, and then careful nourishment, made very easy at first, until the stomach recovers its power. This is seldom realized, and the lash is applied instead, in the form of some kind of stimulant, which shall make the weary stomach work, whether it feels like it or not. This gives temporary relief, but the craving for stimulants is very speedily established. In some cases it may be inherited—"the sins of the parents visited upon the children."

Good and Bad Cooking.

House-keepers or cooks do a vast amount of mischief by the perversion of taste, and the subsequent derangement of the stomach. Making sour bread is one of their most common sins. Many do not know when bread is sour, and supply it with a distinctly acid flavor, believing that it is very "nice," because it is so very light. They suppose bread is sour only when all the vinous firmentation has changed to the acetic. Bread is sour as soon as it tastes at all sour. This may go on increasing, but to the best bread-maker the least acid flavor is a source of grief. Really good bread is positively *sweet*, and will be just as light and spongy as the nicest sour bread, if good material and proper care are used. In families where the taste is perverted by sour bread, other abominations are usually tolerated—biscuit tasting either of excess of soda, or of bitter buttermilk; vegetables seasoned with bad butter, pie-crust strongly flavored with lard or tallow; cake tasting of rancid butter, etc. Along with this diet naturally goes a deal of spicing to cover the bad flavors, or much washing down with hot, strongly seasoned coffee or tea. Sour bread is never good in milk, and children prefer to lunch on pie or cake, rather than on sour bread and milk or butter. The whole family eat as little bread as possible, and the butcher's bill is very heavy—and they call all this "good living!" Just count the empty bottles labelled "Bitters" or "Blood Purifier," that lie around the house, where sour bread and "good living" (as generally understood), either or both hold sway!

The plainest food can be made to taste very good simply by selecting, preparing, and preserving it. Those who eat food selected and prepared with chief reference to its nourishing qualities, eating moderately to gratify a natural appetite, instead of a morbid craving, really enjoy eating more than the gormand or glutton, whose chief pleasure is in eating, and who must have everything fixed up "good," with condiments or hot sauces, and washed down with stimulants. He becomes incapable of detecting and appreciating delicate flavors, and so wears out the sense of taste, that it is hard work to find anything that he can relish; while a dish of good bread and good unskimmed milk, seems very delicious to people with undepraved appetites. Recently I heard a little girl who does not like bread and milk, say of a piece of bread and butter, that "no cake could taste better!" The bread was made of good whole wheat flour, stirred up with nothing but water, and baked in gem irons. It was spread with creamery butter, and I think any one to be pitied who would not like the taste of such gems and such butter. Thorough chewing adds to the pleasure of the sense of taste, this taste resides in the tongue, and in the soft palate and its arches. One common way of abusing the sense of taste is, by eating fast with very slight chewing, so that the food is not retained in the mouth long enough to give the nerves of taste a chance to fairly taste the quality of the food eaten. But for this rapid eating, and washing down with agreeably flavored drinks, much that is usually eaten would be rejected as either bitter or tasteless.

An Egg Tester.

A bad egg is never welcome, and any simple device that will quickly and satisfactorily detect the quality of an egg, is important; we have many calls for something of the kind. Sixteen years ago (Feb., 1866), we gave the very simple method shown in fig. 1. The egg is so held that the hand cuts off all direct rays of light from the eye, except those passing through the egg. The egg may be held towards the sun, or better, toward the light from a lighted candle or lamp in a dark room.....Figure 2 shows a tester we described 11 years ago (Dec. 1871). It is a tin cup 3 inches high, and 2½ inches in diameter, narrowed in at the top to hold an egg endwise. A small

Fig. 1.—THE OLD WAY.

Fig. 2.—A "CUP" EGG TESTER.

mirror is placed as shown by the dotted line. The light passes through the egg, and forms an image upon the mirror which is distinctly seen at the side opening. The same principle is used in the tester shown in fig. 3, only more than one egg is examined at once. This is a small, low box, either of wood or paste board, with a number of "egg holes" cut in the cover. A mirror is placed within, and one side of the box is cut away for observation. If the interior of the box is painted black, the effect will be better. The quality of egg is determined by their degree of clearness. A good egg shows a clear reddish translucent light. The ease with which testers can be made and used, should insure good eggs for the table, and fertile ones for incubation.

Fig. 3.—A BOX EGG TESTER.

BOYS & GIRLS' COLUMNS

The Doctor's Talks.

Several young friends ask me to tell them about studying flowers; they of course mean also the plants which produce them: one youngster, "H. D. B.," asks how I first began to study plants, and the way to preserve them by drying.—How I first studied plants! This takes me far back, to the time when a good friend, quite as old as my father, was always ready to teach me

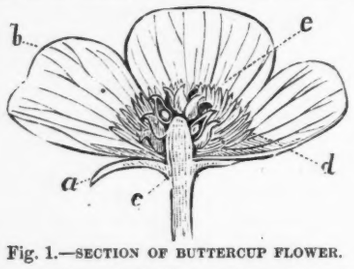


Fig. 1.—SECTION OF BUTTERCUP FLOWER.

about such things. I should be very happy if I, as "The Doctor," could help you as that friend aided me. In

Beginning Lessons About Flowers,

I would, at the very start, impress you with one fact. As you go about the woods and fields you see various kinds of flowers, and in the garden you see many other kinds. Some of these flowers are large, others are small; they are of very various colors and shapes, yet you know them, whatever may be their size, shape or color, as flowers.

Now, What Are Flowers For?

If you look in the vegetable garden, you do not expect green peas or cucumbers, unless the vines have bloomed; you would not expect strawberries, or raspberries, unless the plants had flowered; nor would you look for apples unless there had been apple-blossoms. You well know, I think, that the flower is the beginning, or the starting point of the fruit. But a *fruit* need not, as some suppose, be something juicy. The pea, the bean, the wheat kernel and the corn kernel, are just as much fruits, as are the peach and the apple. Whatever follows the flower, if it bears a seed, is a fruit. In the garden you see a great variety of flowers; in early spring there may be hyacinths and tulips; later there will be lilacs and roses.—So in the woods and fields there will be buttercups, violets, chickweeds, and wherever you turn, flowers of some kind. Now the very first thing that I would teach you about flowers, is this: However unlike flowers may be in size, in shape, or in color, they all have one end in view, which is

Fig. 2.—STAMEN.

Fig. 3.—PISTIL CUT.

4.—ENTIRE.

The Production of Seeds.

These, if sown, will produce other plants of a similar kind. But whether large and showy, or small and not attractive, each and every flower (at least every wild one,) has for its object the formation and the ripening of the seeds of the plant to which it belongs.

About the Flower,

I say "the flower," because however flowers may be unlike—and they show a wonderful variety in some respects, they are *all made upon one general plan*. If you thoroughly understand one flower, its parts, and the uses of these parts, you will be able to understand all other flowers. It makes but little difference what plant we start with, but we will select one, common about everywhere, and one every youngster knows, the Buttercup, and there is hardly a place in the whole country, where one or more kinds can not be found. Some grow in damp soil, others in meadows among the grass; the road-sides and the dry hill-sides furnish others. So we will take the Buttercup as a starting point in the study of flowers. Having gathered a number of Buttercup flowers, you can look at them at first in their natural state; then take one, and with a sharp knife cut right down through it. One of the halves will appear as in figure 1, which is little larger than the real flower. Beginning below, you will first see some green flower-leaves, *a*, five of them. Then, next above these, five large yellow flower-leaves, *b*. I call these flower-leaves, because, as we shall see later, they are much like other leaves, but as they appear in the flower they have distinct names which are easily learned. Thus the set of green flower leaves, *a*, taken together, are the *calyx*, and each separate piece is a *sepal*. Learn these names now, as we shall find similar parts in most other flowers. The bright yellow parts, *b*, are called *petals*, and the whole five together are the *corolla*, which is the showy part of the flower. You will notice that the end of the flower stem, *c*, projects up into the flower and that all the other parts are attached to it. This end of the stem, whatever its shape may be, is the *receptacle*, as it receives and holds all the other parts of the flower. Just within the petals are many little pod-like things on stalks, *d*, which are called *stamens*, and within these are other differently shaped objects, *e*, called *pistils*. I have given you these five parts and wish you to learn their names. Remember now; beginning below, we have the *calyx* (its parts being *sepals*); next the *corolla* (its parts being *petals*); then the *stamens*, and inside of all, the *pistils*. These names may be new to you, but they are not many or difficult, and I wish you to learn them, as they are all the parts that any flower has, and many flowers do not have all of these.

Fig.5. PEA FLOWER.

Now look again at your Buttercup flower. You see that these parts are in sets, one above the other—first the calyx, next the corolla, within this the stamens, and in the center of all the pistils. If you look at the Buttercup flower before it opens, you will see that the first two sets, the calyx and the corolla, are bent over and cover the parts that are within. These two sets are called the floral envelopes, their use being to envelope and protect the smaller parts within. I called the parts in the very center, pistils. There are several of these in the Buttercup flower; shaped as in figure 4. In cutting down through the flower, as in figure 1, you will be very apt to cut open one or more of these pistils, and if you have a magnifying glass, you may be able to see that each one has a hollow part in which is a little seed-like body as in figure 3. Look at this pistil, and you see that it is large and hollow below; above there is a short neck, and at the very top a roughish place. The little body shown in figure 3, is called the *ovule*, and that part of the pistil which holds it is called the *ovary*. The ovule is the very beginning of the seed—and one of the curious things about the flower, is that the ovule can not become a seed without help from the stamens. A separate stamen is given in figure 2. You will see that it is a little case or pouch, at the end of a small stalk. This pouch is called the *anther*, and its little stalk is called the *filament*. Now when the anther is quite ripe, it bursts, usually by a crack on each side, and lets out the finest

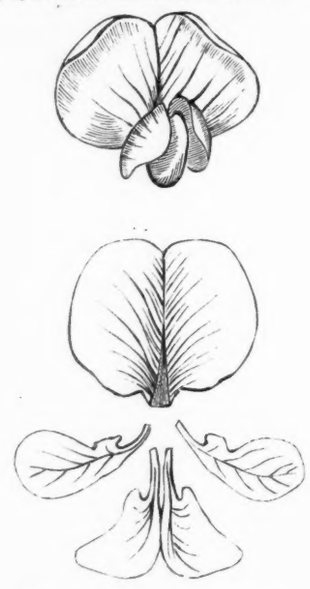


Fig. 6.—PARTS OF PEA FLOWER.

possible dust, called *pollen*. The curious thing about it is, that unless some of this pollen from the stamens falls upon the upper part of the pistil, no seed will be formed. But there are so many stamens and so much pollen, that some of it is quite sure to fall upon the pistils. What takes place can not well be described just now, but it is sufficient to say that this pollen, or fine dust, so acts upon the little ovule in the ovary part of the pistil, that it grows and forms a seed. Now let us review our Buttercup flower: We have its green and leafy *calyx*, then its golden-yellow *corolla*, then many *stamens*; and within these, many little *pistils*. The pistils become little seed pods after the *pollen* has acted upon them.

Now that you have learned the names of all these parts in the Buttercup flower, and their position in rows or series one above another, you will be ready to look for the same parts in any other flowers you may find. First, I must tell you that, while the Buttercup has all the parts that you will find in any other flower, every flower will not have all these parts. Not only will there be in some flowers no corolla, but sometimes the stamens will be in one flower and the pistils in another flower. But we can talk about that another time. What will puzzle you most is the fact that the parts of the flower, all of which are so distinct and separate in the Buttercup, may grow together in other flowers. In some flowers the sepals of the calyx are all in one piece, and in many other flowers the parts of the corolla are united.—Besides this, the same parts of the flower are not of equal size and shape as they are in the Buttercup. You will be puzzled by this, and I can now give you but one example of the many unusual forms you will meet with. When the peas are in bloom, you may not at first see how the pea flower, figure 5, is actually made upon the same plan as the Buttercup, while in appearance it looks as unlike it as can well be. Carefully pick it apart, and you will find five petals. Though they are unlike in size and shape, as shown in figure 6, you will see that they are petals, and stand in the same place with respect to the other parts of the flower as do the *regular* ones of the Buttercup. But it will not do to undertake too much at once. If every one of my young friends will study well the flower of the Buttercup, learn the different parts, and their position, and their uses, they will be well prepared to understand all other flowers. However unlike flowers may seem to be, we shall learn, as already said, that all are made upon a similar plan, and if one is well understood, it is a key to all the rest. THE DOCTOR.

Our Puzzle Box.

PATCHWORK.

(Find in each of the following sentences the letters necessary to spell the implied word. EXAMPLE.—To impair. *Answer.*—Mar. "Harm" would not fill the requirements, as there is no h, in "To impair.")

1. A mixture of things. Not "hash," which would require two h's).
2. A free black on the West India Mountains.
3. A roll,—strip of cloth.
4. To lean,—to remain.
5. A meadow,—a plain.
6. One not a clergyman.

DISLOCATION.

(Find in the following lines the words necessary to form a well-known proverb).

"Will you come to the bower I've shaded for you?"
From the crest of the hill there's a beautiful view,
There's a lovely green meadow where lambs gaily play,
Should the walk be too long we can rest by the way.

ALPHABETICAL ARITHMETIC.

(The letters stand in the place of figures.)

```
RSY)KOELGCY)YOORL
     AGL
    ----
    GCOL
    GYRA
    ----
      CEC
      YSA
    ----
    GROY
    GRRY
    ----
      CS
```

PUZZLE.

Take fifty and five and by nothing divide,
And then add one-fourth of a tome,
And if placed aright you'll need nought beside
To show you a sweetner of home.

NUMERICAL ENIGMAS.

I am composed of 11 letters:—
My 1, 5, 10, 7, 2, is a piece made up of different authors
My 11, 9, 6, 4, is to probe.
My 3, 2, 7, 5, is to denote.
My 8, 5, 11, 9, is a boundary.
My whole is a great blessing. BELLE SPAR.

2. I am composed of 23 letters:—
My 1, 5, 19, 4, is a kind of fairy.
My 17, 20, 1, 4, 11, is spiritless.
My 3, 9, 1, 18, is a narrow fillet.
My 12, 13, 16, 14, is a nobleman.
My 4, 10, 7, 2, 6, 11, 8, 15, 22, 23, 21, 3, is glowing with heat.
My whole, according to Æsop, made a mouse achieve great success.

CONCEALED SQUARE WORD.

1. The monkey amused the children very much, with his tricks.
2. She is a person whom every one respects.
3. We left them making mud pies.
4. They said one was for me and one for Kate.

RHYMING PUZZLE.

Make a rhymed couplet out of the following sentence. No words or letters are to be added or taken away:—
Little Johnny wanted to see the dancing bears, but said it would cost him a dime.

CROSS WORD.

My first is in orange but not in plum,
My next is in finger but not in thumb,
My third is in harness but not in trace,
My fourth is in ginger but not in mace,
My fifth is in father but not in sire,
My sixth is in anger but not in ire,
My seventh is in moustache, but not in curls,
My whole is a fabric worn by girls.

METAGRAM.

In a word of five letters,—a flower-bed—may be found (1) an animal, (2) a fish, (3) a vegetable, (4) a fruit, (5) a kind of cabbage, (6) a portion of land, (7, 8) two articles of clothing, (9) a fabric, (10) part of an animal, (11, 12) two things an animal may do and (13, 14, 15, 16, 17), five other verbs.

HIDDEN ANIMALS.

1. Who found it? I, Gerald Howland.
2. Give me what you wish, reward me as you choose,
3. Did I cause you to stumble? O! pardon me, I pray.
4. Listen to my prayer, Madam, O let me entreat you!
5. Then came the storm, a stiff north-easter!
6. It was a perilous journey.
7. That night a pirate chased us.
8. I shall be a very thankful man when I reach home.

TRANSITIONS.

(Change only one letter at a time, without altering its position—*e. g.:* Change boot to shoe in four moves: Boot, blot, slot, shot, shoe.

1. Change bark to bite, in four moves.
2. Change soar to drop, in six moves.
3. Change pork to veal, in five moves.
4. Change curd to whey, in nine moves.
5. Change leaf to vine, in eight moves.
6. Change rail to road, in six moves.

HALF SQUARE.

1. An inventor. 2. Junction. 9. A legal claim. 4. A weight. 5. A preposition. 6. Part of New York.

EDWARD GAY.

ADDITIONS AND TRANSPOSITIONS.

1. Add a letter to material for lighting a fire, transpose and make something we often do not like to take.
2. Add a letter to a seat for babies, transpose into a precious stone.
3. Add a letter to a certain time of day, transpose into a vegetable.
4. Add a letter to an animal, transpose into a weapon.

Illustrated Rebus No. 490. — Thoughtful words for all to consider.

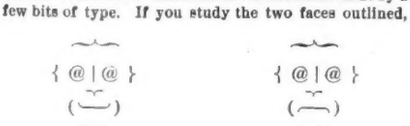
Answers to Puzzles in the March Number.

ADDITIONS AND TRANSPOSITIONS.—1. Trace + p. carpet. 2. Coat + r. actor. 3. Quaint + e. antique. 4. Pear + c. caper. 5. Pair + l; April.

WORD-BUILDING.—Lie—veil, olive, violet. 2. Gas—sage, stage, grates, strange. 3. Cut—curt, cruet, curate. 4. One—cone, ocean, canoes. 5. Hat—thaw, wheat, wreath, weather. 6. Mit—mite, mitre, hermit. 7. Cap—chap, peach, chapel, chaplet. 8. Fy—fay, fray, fairy, acrify.

Corners Up.....Corners Down.

Did you ever think how little variation in a single feature is required to change the whole expression of one's countenance? Here is a fair illustration made by a few bits of type. If you study the two faces outlined,



you will see that the only difference is that in one the "brace" representing the mouth is turned *upward*, and in the other *downward*. Yet the left-hand face is cheerful and pleasant, while the other is cross and growling. It all depends upon whether the "corners of the mouth" are turned up or down. Every one can see living illustrations of this difference all around him—among little people and grown ones. Some are almost always cheerful; they make the best of things; they look for and see the good points in their companions; if disappointed in not receiving what they expected, they make the best of it, and try to discover some good to come out of apparent evil. Probably their parents early taught them to yield to necessary restraint cheerfully, not petulantly; not to get angry and go about pouting for an hour. They will go through life so, making all others around them happy by their own sunny cheerfulness. *They keep the corners of their mouths always turned* UP. The philosophers call such people "Optimists."....Then we see others who are almost always in a growling mood. They are constantly suspecting other people of bad motives, and looking for flaws and errors in those around them—something to find fault with—and are happiest when they can do so. They live in a perpetual growl, except when with some particular chosen friends. If they grow up to be employers their employees must always be in a state of abject submission—always on the watch lest they get scolded, and do not give a faithful, cheerful, loving service. Such people are "Pessimists," looking upon most things and events as bad. They fretted and were allowed to fret, to be petulant, in childhood when one's habits of life are forming. *The corners of their mouths are almost always turned* DOWN. We wish our young friends would think about this. Suppose each of you keep a little account, and see how many minutes and how many hours in one day the corners are turned UP, and how many DOWN. It will be a capital lesson to learn.

A Few Things About Italy.

It is a very good thing for boys and girls and young people to take some country and get fixed in their minds a few general ideas, so that they will come up quickly whenever the name of the country is mentioned. Let us study Italy now. With your pencils make a drawing of it from your school or other map. See how nearly it is shaped like a boot. The Alps mountains run along its north side, and the Appenines run down through it. Most of its northern part is a great level plain, the Plains of Lombardy. We have been at places on this where, as far as we could see every way, the ground was as level as a board. Rome stands on a broad flat country running far along the shore of the Mediterranean sea.—THE SIZE of Italy is 114,409 square miles. It would take 29¼ Italys to equal the United States, without Alaska. Or Italy is as large as New York and New England, leaving out nearly half the State of Connecticut; or about the size of Nevada.—THE POPULATION of Italy in 1872 was 26,801,154, and is now probably about 28,000,000, or four-sevenths that of the United States. Turin city has about a million inhabitants (972,986 in 1872). A new census being taken this year gives other leading cities thus:—Naples, 480,334 (nearly up to our Chicago); Milan, 321,000 (nearly up to our Baltimore, Md.); ROME, 300,292; Palermo, 244,955 (half way between San Francisco and Cincinnati); Genoa, 179,491 (nineteen thousand more than Cleveland, Ohio); Florence, 168,000; Venice, 130,698 (six thousand less than Newark, N. J.); Bologna, 122,884 (about the same as Louisville, Ky); Messina, 120,000 (same as Jersey City, N. J.); Catania, 101,000 (not quite up to Providence, R. I.); Leghorn, 97,615 (seven thousand more than Albany, N.Y.); Ferrara, 77,008 (between Indianapolis, Ind., and Allegheny City, Pa.); Padua, 72,174; Verona, 68,741; Lucca, 68,116; Ailessandria, 62,634 (nearly same as New Haven, Conn.); Brescia (60,630, (like Lowell, Mass.); Bari, 60,575; Ravenna, 60,306. Find these cities on your map of Italy. You will perhaps be surprised to notice that the larger part of "sunny Italy" is directly east of New England. Naples is about six miles further north than New York City; and Rome, in central Italy, is almost directly east of Boston, Mass.

The School Children.—Six Problems for Boys and Girls.—In the new census figures, the numbers reported as of "legal school age" in the United States and Territories is 15,307,109.—(This age in California is from 5 to 17 years old; in Connecticut, 4 to 16; in Georgia and Louisiana, 6 to 18; in New Jersey, 5 to 18; in Rhode Island, 5 to 15; in South Carolina, 6 to 16; in Texas, 8 to 14; in most, if not all the other States, it is 5 to 20 or 21).

1.—Suppose all these 15,307,109 were to stand in a row and join hands, allowing each one to occupy 4 feet in the row, how many miles long would the row be?

2.—If we call the distance from the Atlantic to the Pacific Ocean 3,500 miles, how many full rows of school children would there be across the continent, and what part of another row?

3.—Suppose that each one has a spelling book, costing 10 cents; a reading book, costing 30 cents; a slate, costing 20 cents; slate and lead pencils, costing 5 cents; pens, ink, and writing books, costing 30 cents a year; how much would all these cost for the whole?

4.—If each boy's coat costs, on the average, $6; his pants, $4; his vest, $2; his shoes, $1.75; his socks, 60 cents; his cap, $1.25; his "tippet," 20 cents; his shirts, $1.20; his under garments, $1.05; his over-coat, $8; and suppose the girls' outfits to cost the same as the boys: What would be the total cost of clothing for all?

5.—How many farms of 100 acres each would this clothing buy, at $50 an acre?

6.—If each of these 15,307,109 children and young people lose, on an average, 15 minutes during the forenoons, and 21 minutes during the afternoons, in listlessness, or thinking of something else besides study, how many years in all will the lost time reckon up. (N.B.—In reckoning the lost time, and in estimating the years, take an average of 35 school weeks in a year, 5 days in a week, and 6 hours a day).

The Answers:—Let all our young friends make out their answers to the above 6 questions, and write them down, and then see how near they come to the answers which will be printed in the next number of the *American Agriculturist*. You need not send the answers to us, unless you wish. If you do, they can be put on a postal card, writing against No. 1 its answer, and so on.

A Good State for Boys and Girls.—According to Senator Logan's speech in the U. S. Senate, March 16, California goes ahead of all other States in the amount raised by taxation per scholar for public schools, viz., $18.06 for every child of school age in the State. Massachusetts comes next, with $16.86 per scholar. But, come to think of it, California reckons only those children of 5 to 17 years old, while Massachusetts takes in all between 4 or 5 and 20 or 21. This will make quite a difference in the amount for the number actually attending school. But, however that may be, California's record is a splendid one for a young State. We will not give the names of those States which expend only $1.99 and $2.09 per scholar hoping they'll see Mr. Logan's comparisons and do better.

AN ODDLY-COLORED EASTER EGG.

Peanuts or Ground Peas.

It is not probable that Peanut culture can be made profitable north of Virginia, though a few may be grown as a curiosity almost anywhere. Children who are fond of peanuts, will be much interested in seeing them grow, and in raising a few for themselves, even if they do not turn out to be of the best kind, and a patch may well find a place in the garden. A light sandy soil, especially one that has been manured for a previous crop is best, and as in field culture, lime or superphosphate are found the best fertilizers, these, if at hand, may be used in the garden. Make the hills about 3 feet apart each way, and plant four or five seeds, shelled, in each hill. Recollect that *baked* peanuts can not be raised in the garden, and that it is necessary to get *raw* seed of the last year. Cover the seed about 2 inches deep, and when the plants are well up, thin out all but two of the strongest, and let them run as they will, keeping clear of weeds. It will be interesting to the young people to see how, after the parts of the flower fall away, the young pod is actually pushed into the ground by the lengthening of the stem. Each little pod is thus actually buried by the plant, and when fairly under-ground, it grows, and in time reaches its full size, becoming a regular peanut. Of course the first frosts will put an end to their growth, when the vines, with their attached nuts, may be lifted with a fork, and allowed to dry a while in the sun. Afterwards the peanuts may be picked off. If in northern localities most of the pods are "pops," *i. e.*, have nothing within them, never mind, as they have afforded an opportunity for watching a very curious plant. Those who ask about the peanut as a field crop, are referred to an article in the Report of the U. S. Dep't. of Agriculture for 1868, where the experience of a successful Virginia cultivator is given in full.

"What Makes the Ground Crack in Freezing?"

This is a question sent by "T.D.A.," Blair Co., Pa. If my young friend should fill a bottle with water, and leave it out on a cold night, he would find the water frozen in the morning, and the bottle broken. It is one of the most important facts in nature, that water, in changing from the liquid to the solid state, that is in becoming ice, expands to *one ninth* of its former bulk. The power exerted in doing this is immense, sufficient even to burst strong iron vessels. Suppose that instead of a bottle of water, as mentioned above, you were to expose a lot of glass tubes of the size of straws and filled with water. If these tubes, some dozens of them, were tied together and placed where the water would freeze, there would be a curious mass of broken glass and ice. We well know that the earth, or "ground," as "T. D. A.," has it, is very far from solid. We can squeeze it up in the hand to form a compact mass. The ground is full of spaces between its particles, which are usually filled with air. If these spaces are filled with water, and it freezes, what a pushing there would be! It is this freezing of the water in the soil that causes the cracks in the first place; after the little films and layers of ice in the soil melt, the particles of soil that have been pushed aside can not get back to their former place, and cracks are left. The cracking of the soil in this manner, which we can see, is only a part of what goes on every winter. Upon the face of even the hardest rocks, there are little cracks and crevices into which water can find its way; when this water freezes, little bits of the rock are pushed off, and are added to the soil. By far the greater part of our soil is made up of very small bits of rock. When the soil freezes, not only are cracks made in it, but the little bits of rock of which it is made up, are cracked and broken still smaller; this division among the little rock particles, goes on year after year, until what was once the great rock, becomes the finest imaginable powder, to be acted upon by the water in the soil, and help feed the plants. So useful is this freezing of the water in the soil, that many gardeners, in the fall, throw up the earth in ridges, the more thoroughly to expose it to the frost. As a gardener once said to me: "it will make my poor soil as fine as silk."

THE DOCTOR.

DAISY ON HER WAY FROM SCHOOL.

Daisy and the School-House Key.

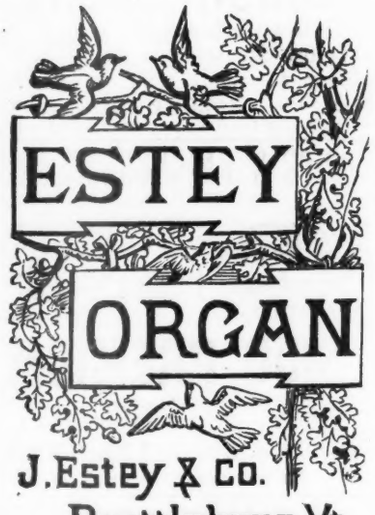
There was a new school-house at Osage and a new teacher. The house, standing on a side road, had windows so high from the floor that no idle scholar was tempted to look out at a passing hay-cart. Miss Gold, the teacher, was kind and strict, small and prim, and though afraid of cows and bugs and tramps, she easily controlled the naughtiest child that ever sulked or stamped, and her courage thus lay in the right direction. So when Peter Brown was very bad on this particular Friday, she punished him fearlessly, and after allowing him an hour for reflection, sent him home.

That same afternoon, our Daisy, of the picture, was going through the fields, when she heard her name called, and stopping, Peter popped his head up from the bushes, and nodded in a mysterious way. Peter told her at once that she could do the teacher a good turn, if she would promise never, never to tell that she had the hint from him. He so evidently meant what he said, that she gave him the promise readily, hoping in her good heart that he was at last sorry for always being so dreadful a boy. Daisy, the sweetest, the truest, and most faithful little soul that ever sat behind a desk, could not suspect the piece of malice that Peter, with a grin of delight, then confided to her. Waiting until Miss Gold was quite alone and busy at her writing-desk, he softly turned the key in the lock, and fastened her in the school-room. For over an hour, now, she had been locked up, shaking the door and calling from the window, but no one had passed by, and no one but Peter was near enough to hear her. "And now she knows how *she* likes it!" exclaimed Peter. Daisy's first act was to let Miss Gold know relief was at hand; her next, to find some one to get the door open, and by that time the news was well spread. Some thought it a good joke, but others felt that it was no joke at all to have in the village a character daring such lawlessness. Miss Gold had quite her own feelings on the subject, and when the school assembled Monday morning, she called each scholar by name, and asked if he or she knew anything of the matter. All said "No," except Daisy, who answered "Yes." But she would say nothing further than, "If you please, I can't tell."—"I am sure," said Miss Gold, "we none of us believe Daisy guilty; but as she will not tell what she knows, and so grave an offence cannot be passed over, she must be punished instead of the real offender. I hope," concluded Miss Gold, "if the real offender is in this room, he or she will feel the shame of letting an innocent person suffer, and will prevent it." But no one responded, and the medal was taken from Daisy's neck, and she was suspended from the school until Miss Gold should consider what was best to do further. No one but Daisy knew how hard it was to truthfully keep her promise. With downcast countenance, she walked quietly out of the silent room, carrying her slate and the flowers she had picked that morning, but had not given to Miss Gold. She stopped and looked wistfully, half hoping to see Peter running to call her back. But, though no Peter came, his grandmother, lame Mrs. Brown, appeared, hobbling up the road. Daisy's heart was heavy, yet she was half relieved by the sight of Mrs. Brown, whom she had often heard say, "no one ever did anything for *me*," that she fell into sympathy with the grandmother of so bad a boy as Peter. So she ran up, and, holding out her flowers, "Mrs. Brown," she said, "I would like to give these to you."—The lady stared at her, almost bewildered, and asked, "What do you want?"—"I would like you to take them, because I'm sorry nobody does anything for you," said Daisy.—"Well, well," said the old lady, less sharply, "you're a queer child," and she took the flowers, with no further thanks. But as she was going off, she stopped again to ask why Daisy was not in school. When she heard why, Mrs. Brown muttered to herself, looked at the flowers and at Daisy, and, finally bidding her wait, went off to the cottage. When she came back, she held a key in her hand, and closing Daisy's fingers over it, said: "There, if you want to do something for me, take that to your teacher, and tell her Mrs. Brown said she found it in Peter's trouser's pocket." Daisy did so, and the whole school rose and shouted with joy. And Peter? Why, he said he was very much obliged to his grandmother, for he was growing more wretched every moment, and must have confessed some time." But the most wonderful thing of all is, that, before the end of that term, the three best friends in the school were the new teacher, the boy that locked her in, and little Daisy, who brought back the school-house key.

GEORGE ADAMS.

THE IODINE TRICK.

It is astonishing to what peculiar methods people will sometimes resort to endeavor to advance their own and injure others' interests. One of the latest and most unfair expedients is that of certain manufacturers of baking powders, who are endeavoring to prejudice consumers against all other preparations than their own by exhibiting from house to house a test purporting to show the quality of various powders. The facts are, this so-called test, which we are told simply consists in adding a little iodine to a sample, can in no way reveal the true value of a baking powder, and is only calculated to deceive and prejudice the minds of the ignorant and unwary. Some powders are injurious, but this can only appear by an analysis. The true value of a baking powder consists in the amount of leavening gas which is given off when heat and moisture are added to the flour, and it is only the chemist, with the aid of chemical appliances, who can determine the volume of gas which any powder can evolve. We will venture to say that there is not an article prepared for food that might not be manipulated by chemical tests to prove that something was wrong about it, and when a person goes into a kitchen, or before a house-keeper, who is not to be presumed to understand chemical relations, and performs an experiment of even the simplest character, it is not difficult to impress one that something awful is the matter. As to baking powders, we could suggest a dozen tests that would be as ridiculous in giving a fair idea of their relative merits to an uninstructed mind as the one here mentioned. The truth is, that the best test to make of a baking powder is to try it in making bread, and see which makes the most and best. To this practical test all of the established brands of powders have been put, and house-keepers have very generally made up their minds which they prefer, and the iodine testers will find ultimately that households that have for years used a favorite brand will not be apt to make a change on the test proposed.—*American Grocer.*



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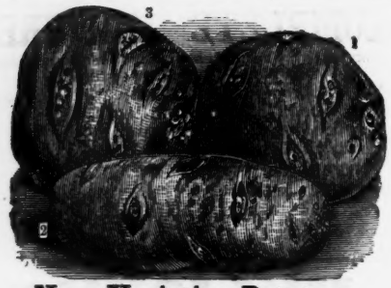

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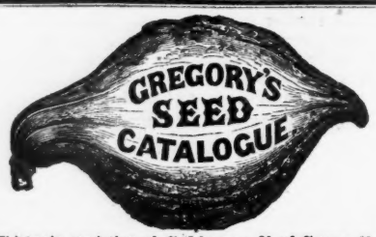

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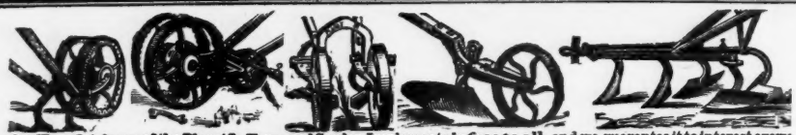

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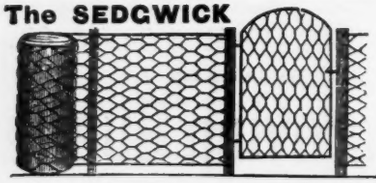

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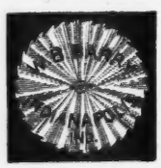

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Logs remain stationary while saw travels—cutting with under side of saw. This method admits of cutting with the grain, **saving 25 per cent. in POWER.** Its convenience and portability **save 50 per cent. in TIME.** Send for full descriptive circular. **Agents wanted everywhere.** Address

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Teeth are extra strong weighing 5 to 15 lbs per set more than others. Will do heaviest work without breaking.

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EASY TO WORK, Simple in Construction, Beautiful in Appearance, Noiseless in Operation, Strong and Durable.

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TWELVE SIZES FOR HAND USE.
Weighing from 21 to 51 lbs.
THREE SIZES FOR HORSE POWER.

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Patentees and Manufacturers,
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1882.

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Penn. State Agricultural Society says: "It will, we believe, wear longer, do the work better, with less labor than any other Mower. One of the peculiarities is that it will cut higher grass than any other Mower." The Quaker City 10-Inch Mower for small Lawns and Plots is unequalled.

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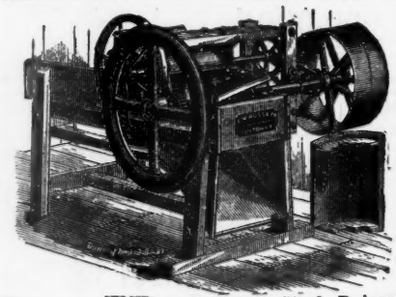

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Embodies **Entirely New Principles and Methods** of sewing mechanism.
Runs with **one-third the Power** of the lightest running machine of other makes.
By means of our Automatic Device, Numerical Stitch Indicator, etc., makes from a single spool a seam **stronger and more beautiful** than by any combination of two threads.
Ladies careful of Health and appreciating the Best will now have no other.
Adapted for Hand or Treadle.

Write for our NEW ILLUSTRATED PRICE LIST, Form 11, just issued, and full of interest to all owning or using a sewing machine.
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Warranted ***absolutely pure Cocoa,*** from which the excess of Oil has been removed. It has *three times the strength* of Cocoa mixed with Starch, Arrowroot or Sugar, and is therefore far more economical. It is delicious, nourishing, strengthening, easily digested, and admirably adapted for invalids as well as for persons in health.

Sold by Grocers everywhere.

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Accurate, compact, weighing but *two pounds*, invaluable for tourists. An Essay on Modern Photography, beautifully illustrated, with sample photograph produced by this instrument in the hands of amateurs, sent on receipt of Ten Cents. Circulars Free. Wm. H. Walker & Co., Box G 900. Rochester, N. Y.

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Sixteen (16) Grades.
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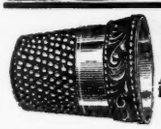
BAKING POWDER

Absolutely Pure.

This powder never varies. A marvel of purity, strength and wholesomeness. More economical than the ordinary kinds, and cannot be sold in competition with the multitude of low test, short weight, alum or phosphate powders.
Sold only in cans. ROYAL BAKING POWDER Co., 106 Wall St., New York.



Solid Silver Thimbles.

Warranted of Coin Silver.
Any size sent free by mail for 40 cents in stamps. 3 initials on 10 cents extra.
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Quick Mails AND Fast Express

ENABLE YOU TO PURCHASE

DRY GOODS

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—FROM—

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Boston, Mass., U. S. A.,

With as much satisfaction as if you were buying in person. Send for our

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SAMPLES promptly forwarded. ORDERS executed with the most scrupulous care and despatch.

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JORDAN, MARSH & CO., Washington and Avon Streets.

containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

In justice to the majority of our subscribers, who have been readers for many years, articles and illustrations are seldom repeated, as those who desire information on a particular subject can cheaply obtain one or more of the back numbers containing what is wanted.

Back numbers of the "American Agriculturist," containing desired articles, or those referred to in the "Basket" or elsewhere, can usually be sent post-paid for 15 cts. each, or $1.50 per volume.

Clubs can at any time be *increased* by remitting for each addition, the price paid by the original members; or a small club may be made a larger one at reduced rates, thus: One having sent 5 subscribers and $6, may afterwards send 5 names more and $4, making 10 subscribers for $10.00; and so for any of the other club rates.

The German Edition.—All the principal articles and engravings that appear in the *American Agriculturist* are reproduced in a German Edition. It is the chief and best German Journal of its kind issued in this country. Our friends can do good service by calling the attention of their German neighbors and friends to the fact that they can have the paper in their own language. Those who employ Germans will find that Edition a most *useful* and acceptable present.

Bound Copies of Volume 40 (1881) are now ready. They are neatly bound in our uniform style, cloth, with gilt backs. Price at the office, $2. If sent by mail $2.30. We can usually supply, at the same rate, any of the 25 previous volumes, or from volume 16 to 40 inclusive. Any *ten* or more volumes, in one lot, will be supplied at the office for $1.75 each; or be forwarded by mail or express, carriage prepaid, for $2 each.

Terms to New South Wales, New Zealand, Australia, Europe, etc.—To several inquirers. Under the latest revision of the Postal Union Regulations the price of the *American Agriculturist* (either English or German edition), including postage *prepaid* through, will be covered by 7 shillings sterling per annum. This applies to the above countries, and to all others embraced in the General Postal Union. The simplest mode of remittance is by Postal Money Orders, payable in London, to the order of Orange Judd Company. These can be readily cashed in N. Y. City at a slight discount, which the publishers will cheerfully pay. For Club rates (postage included), see page 230, and reckon the shilling sterling at 24 cents.

Read the Advertising Columns.—Letters are daily received by the Editors, asking where pigs, fowls, seeds, fertilizers, machinery, etc., can be procured. We consider all the information of this kind that is given in the advertising pages sufficient, if those needing anything will only look there; we can not find room to repeat what is already plainly told elsewhere. Every page of the *American Agriculturist*, including the covers, is interesting reading, and should all be carefully examined every month. In addition to looking after what one may want, the reading of what others have to say, in offering their wares, etc., starts up some new idea in the mind of the reader.—When writing to any advertiser, always tell him in what paper his advertisement was seen.

Wise too Late.—A correspondent in a New England State listened to the representations of a tree peddler as to an apple which would come into bearing sooner, sell better and keep longer than the Baldwin, and ordered quite a lot of the trees. He has since heard that the variety is inferior to the Baldwin, and writes to ask us about countermanding the order. If an order has been unconditionally given, it would seem that our friend is obliged to take the trees, unless he can show that he was induced to order them by false representations. How he can prove this, when the variety is not recorded in the pomological works, we are unable to see. The inquiries as to the apple should have been made *before* giving the order. We have often stated that new and especially desirable fruits are not introduced by tree peddlers. Those who order fruits upon the representations of these, repent doing so sooner or later.

EVERY FAMILY IN AMERICA

WOULD BE DELIGHTED WITH A COPY

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"Gallery of Famous Paintings."

A magnificent Volume, 14 by 20 inches, splendidly bound in extra cloth, ornamented in gold and black; weight over six pounds.

It contains **20** charming Engravings, on very heavy sheets, beautifully colored, which friends and visitors will never tire of examining. These large pictures, on separate unbound sheets, are sold at from **$1** to **$2** each. The bound Volume containing the **20**, is sold for **$10.**—(No person having it would part with it for twice $10, if another could not be had.—In no other way could even $20 do more to ornament a Parlor Table.)

The Publishers of the *American Agriculturist* have arranged for a very fine, SPECIAL EDITION, expressly for their Readers, on such terms as will place it within reach of almost *every* Family, as follows:

Any subscriber sending $5.80, will be entitled to receive the American Agriculturist for one year, and, in addition, a copy of the Gallery.*

(This will make the Gallery of Paintings practically cost only $4.30, instead of the regular price of $10, which it is richly worth.)

A FREE COPY.

Any person sending *seven* subscriptions to the *American Agriculturist*, at the regular price ($1.50 a year), will be PRESENTED with a copy of the GALLERY.*

☞All the above applies only to subscriptions received after March 20, 1882, and until further notice.

*☞ The Gallery of Paintings will be delivered at the Office; OR will be forwarded by express, the carriage to be paid by recipient; OR, for very distant points, will be carefully packed and sent by mail, on receipt of 70 Cents extra for postage.

To make Grafting Wax.—We have answered a number by mail, but so many inquiries continue to come, that we repeat the recipe given in former years. Rosin, Bees Wax, and Tallow, are the essentials. Some use equal parts by weight of these; others prefer, as warm weather approaches, more Rosin and less Tallow. A good recipe is Rosin 2 lbs., Bees Wax one lb. and a quarter, Tallow 12 ounces. These should be melted well together over a gentle fire, and stirred as the mixture cools. It is most conveniently used upon strips of cloth. Any old calico or muslin that will tear readily, may be torn into strips 2 inches wide, made into balls and soaked in the melted wax, until thoroughly saturated. We prefer to roll the cloth upon a short stick, to afford a handle. If paper is to be used, the warm Wax is spread with a brush upon one side of this Manilla paper. Some grafters prefer a wax made with raw Linseed-oil in place of the tallow, using a pint of oil instead of a pound of tallow.

Curing Sheep and Other Skins, with the Wool or Fur on.—"H. G. S.," Simcoe, Ont., thinks that many farmers would tan sheep and other skins, with the hair or wool on, if they were told how. They are very convenient for sleighs, wagons, house rugs, and many other purposes. We give the following from a reliable source, remarking that it is essentially the same that we have found in use by the trappers and hunters in the "wilderness." All fatty and fleshy matter should first be removed from the skin, and with sheep skins the wool should be washed clean with soft-soap and water, and the suds be thoroughly rinsed out. For each skin take 4 ounces of Salt, 4 ounces of Alum, and half an ounce of Borax; dissolve these in one quart of hot water, and when cool enough for the hand to bear, stir in sufficient rye meal to make a thick paste. This paste is to be spread thoroughly over every part of the flesh side of the skin, which is then to be folded together lengthwise, wool-side out, and left for two weeks in an airy place. Then remove the paste, wash and dry the skin. When nearly dry, it must be worked and pulled, and scraped with a blunt knife made for the purpose, shaped like a chopping knife, or with a piece of hard-wood worked to a sharp edge. The more the skin is worked and scraped as it dries, the more pliable it will be. Other skins can be similarly tanned and keep the fur on.

Worms in Beet Leaves.—"H. B. S.," Clinton, N. Y., finds that his beet leaves of late contain small white worms, varying from 1/16 to ¼ inch in length, which at first can only be discovered by holding the leaf up to the light, but later they cause the leaves to wither. He finds them not only in the common beet leaves, but also in those of Swiss Chard, and asks if it is an old pest, or a new comer. We judge from the description, that this must be the Beet Fly of Europe, which has within a few years proved troublesome in England. The perfect insect (*Anthomyia betæ*. Curtis), is own brother to the Onion Fly, which is often so destructive to young onions. It is a two-winged insect, not so large as the common House-fly, which lays its eggs in patches on the under-side of the leaves. The maggots, as soon as hatched, enter the leaf and rapidly devour the softer portions. In about a month they enter the ground, and in 10 days a second brood comes out to continue the mischief. This last brood passes the winter in the pupa state in the ground, according to English authorities. One writer suggests superphosphate as the best remedy, but this can have no other effect than to stimulate the growth of the plant, and enable it to endure the attacks. We are not sure that the insect has been observed in this country heretofore.

Shading a Conservatory or Green-house.—"E. H. A.," has a conservatory connected with his house, and does not wish to whitewash the glass for the purpose of shading the plants. Then a screen of some kind must be used. One may be made of light slats of wood, an inch wide, fastened together by cords so far apart as the width of the slats. This may be in sections of ten feet wide, and made to roll up in dull weather. An awning of some loosely woven fabric, may be used, also contrived to roll up when not needed. Shades of these kinds should be upon the outside, and so arranged that they may be fastened down in heavy winds.

Ignorance and Crime.—An official report from 63 rural "Departments" of France, states that of 3,354 criminals arrested, only 512 could read and write well; 1,480 could neither read nor write at all, and 1,362 could only do so imperfectly. In New York City there is 1 crime to every 3 persons among the illiterate, and only 1 crime to every 27 among those who can read and write. The figures for the State show a far greater difference in favor of education. In Massachusetts 1 in 20 of the ignorant commit crime, and only 1 in 126 of those who can read and write.

Spotted "Clover" Leaves.—"C. R. B.," Portsmouth, Va., sends leaves from a patch of White Clover, with a blackish spot on each leaflet. These leaves probably do not belong to the clover at all, but to a nearly related plant, the "Spotted Medick," or "Nonsuch" (*Medicago lupulina*), which is very common. It will be found to have yellow flowers, instead of the white ones of the clover. It does no harm.

MONEY MADE RAPIDLY.

A fine opportunity for LADIES, for TEACHERS (Male and Female), for Students; for Young People; for Canvassers Everywhere.

The Publishers desire an Agent or Canvasser in every town in the country (where one is not already at work), to introduce the **Gallery of Paintings**, and the *American Agriculturist*. Every family called upon will want a copy as soon as they examine it. It speaks for itself, requiring no gift of speech on the part of the Canvasser.

Any active Lady or Gentleman, young or old, should readily make **$10 a day.**

Terms made known on application; but any one can go right to profitable work, and save time by sending at once $5 for an Outfit, which includes the Gallery of Paintings. Send statement as to good character of the Applicant from the Postmaster or other prominent person.

This is an opportunity that is seldom offered.

FOUR HUNDRED and FORTY-THREE GENERAL PREMIUMS

Offered to Our Subscribers.

We again call the attention of all our Readers to the

ILLUSTRATED PREMIUM LIST.

Containing Thirty-two Pages, with a large number of Engravings, describing 443 Fine Premiums, offered to our subscribers.—This List was made up in October last and the offer holds good

To the End of June.

☞Every one who has not received a copy, or who has lost or mislaid the copy received, is invited to send his address for one, by Postal Card or otherwise.—Also the address of any friend who will be interested in receiving a copy. ☞A copy will be mailed post-paid to all desiring one.

Catalogues Received.

According to custom this will be our last general list of spring catalogues, though we may notice some of special interest. The autumn catalogues will be acknowledged in September and later, and those desiring recognition in the list should send their catalogues as soon as ready. The tendency to combine two distinct branches of business—as seeds and greenhouse plants—is so general, that as a rule we can only spare space to notice catalogues under what appears to be the leading business. We make these notices of catalogues, not so much for the benefit of those who issue them, as for the general information of our readers who so frequently write to ask where they can get this or that. *In sending to any of these parties for their catalogues, our readers may confer a double favor by referring to their announcement in this journal.*

SEEDSMEN.

C. E. Allen, Brattleboro, Vt.—A catalogue which, besides seeds, is so full of flowering and small fruit plants, that we are doubtful where to place it.

A. Busch, Zewitz, Pomerania.—A special potato catalogue offering 200 varieties including the later American sorts.

Samuel N. Cox, St. Joseph, Mo.—Full and neat, with a useful list of common, and corresponding botanical, names.

Everett & Gleason, No. 34 South Market St., Boston.—Mr. Gleason formerly had charge of the seed business of R. H. Allen & Co., New York, and the neatness and compactness that marked their catalogues are found in his own.

J. C. Everitt, Ontario, La Grange Co., Ind.—Besides the standard vegetable seeds makes a specialty of potatoes, of which he offers a wonderful assortment.

H. A. Fielding, Lowell, Mass.—Besides an illustrated list of garden, field and flower seeds, offer nearly every implement needed on the farm.

Hovey & Co., No. 16 South Market St., Boston, Mass.—No one would suspect, from the freshness of the catalogue, that this house is one of the oldest.

Benj. F. Hoover, Galesburg, Ill., makes a specialty of seed potatoes, and tells about them.

E. L. Meyer, Hutchinson, Kans., converts a part of his catalogue into a useful almanac.

John R. & A. Murdoch, Pittsburgh, Pa., besides seeds, have a great variety of plants.

Robert C. Reeves, 185 & 187 Water St., N. Y.—Besides vegetable and flower seeds, is very full in farm seeds and implements.

Wm. Rennie, Toronto, Ont., Canada, has a list as varied, and as beautifully illustrated, as if it were issued on this side of the border.

C. R. Rogers, 113 Market St., Philadelphia.—A very full and well illustrated list, with many specialties.

Steele Bros. & Co., Toronto, Ont., Canada.—A beautiful list, without and within, and full of everything.

Isaac F. Tillinghast, La Plume Pa., offers "Reliable Seeds at Honest Prices"—and give useful talk about them.

Robert Vietch & Son, New Haven, Conn.—Mr. V. is widely known as a skillful cultivator. His catalogue includes both seeds and plants.

NURSERYMEN AND FLORISTS.

Some of our best known nurserymen are also florists, and we give the few catalogues that come to hand at this late season, under one head.

P. J. Berckmans, Augusta, Ga., besides being the largest nurseryman in the Southern States, is also the largest dealer in greenhouse plants, as this catalogue shows.

John S. Burrow, Fishkill, N. Y.—Issues a special illustrated circular of several of Mr. Ricketts' wonderful grapes.

Bush & Son & Meissner, Bushberg, Jefferson Co., Mo.—We have already commended the compactness and the comprehensiveness of the admirable list sent out by this house. It includes every variety worth growing, and many not to be had elsewhere.

E. R. Crosson, Colorado Springs, Colo.—A full and instructive list of small fruits with several specialties.

James Draper, Worcester, Mass.—A general list of fruit and ornamental plants.

Ellis Bros., Keene, N. H., devote the greater part of their catalogue to greenhouse and bedding plants, but offer the modest potato, and vegetable plants.

The Gould Nursery, Beaver Dam, Wis., offers general fruit and ornamental stock.

Henry Merrill, West Newbury, Mass.—Small fruit plants, strawberries a specialty, and sensibly advises his customers to take the agricultural papers.

E. S. Miller, Wading River (L. I.), N. Y.—An illustrated list of the leading bedding plants, with all the novelties.

William H. Moon, Morrisville, Pa.—Besides the usual fruits, is very full in ornamental trees and shrubs, and well illustrated.

E. Y. Teas, Dunrieth, Ind.—General orchard and small fruits, with novelties; he also brings into prominence several native plants, including that lovely shrub, *Clethra alnifolia*, for which we here thank him.

Henry Wilbur, Montgomery, Mich., publishes "Hints on Fruit Culture," and very useful hints too; at the end he modestly gives a list of prices.

Wm. C. Wilson, No. 45 West 14th St., N. Y. City, and Astoria (L. I.), N. Y.—If there is anything in the way of a plant, whether ornamental or fruit-bearing, not included in this compendious catalogue, we are sure that it must be a rarity.

MISCELLANEOUS.

Including Machinery, Implements, Live Stock, and whatever is not included under the foregoing heads.

Bausch & Lomb Optical Company, Rochester, N. Y., and 37 Maiden Lane, N. Y. City.—This firm, well known to the readers of the *American Agriculturist*, issue a catalogue of their more costly optical instruments of various kinds.

W. S. Blunt, 94 Beekman St., N. Y.—A "Supplementary Catalogue" giving the improvements that have been made in, and accessories contrived for, his excellent pumps.

A. B. Cohu, No. 197 Water St., N. Y.—This catalogue for 1882, after devoting over 60 large pages to his own wares, adds about 40 pages describing kindred articles made by others. It is a wonderful production, and might be accepted as an exponent of mechanics as applied to agriculture in 1882.

Doty's Washers.—Our old friend Doty now sends his catalogues from Chicago, describing "Improved Washers and Starchers." The trouble with Doty is, he is always improving on himself.

D. M. Dewey, Rochester N. Y.—Besides colored plates of fruits and flowers, offers in his catalogue almost everything that a nurseryman can want.

H. B. Griffing, No. 70 Cortlandt St., N. Y.—Proprietor of the "Metropolitan Agricultural Works," in a copiously illustrated pamphlet shows the wonderful variety of implements and machines they produce.

Hercules Wind Engine Co., No. 17 Moore St., New York.—This "Wind Engine" which essentially differs from ordinary wind-mills, is fully explained and illustrated, with all its accessories, in a neat pamphlet.

Charles D. Lake, Baltimore, Md., in a neat treatise illustrates all sorts of hives for bees to store honey in, as well as plants from which they may get it.

Alfred Leida, Delaware Station, N. J.—Describes Plymouth Rocks, his special breed of fowls.

Mapes Formula and Guano Company, 158 Front St., N. Y.—This company believes in printer's ink, and publishes interesting pamphlets. They are on the right track, *i. e.*, having every article, just what it purports to be.

Maywood Co., No. 58 La Salle St., Chicago, Ill.—All the parties interested in the "Chicago Screw Pulverizer," and "Scraper and Ditcher," are consolidated under the above title. They publish a circular of about 75 pages, which tells all about these effective implements.

Powell Brothers, Springboro, Crawford Co., Pa., claim to have "the choicest collection of live stock in the world." That they have fine Clydesdale horses, has long been known. In a circular of exquisite neatness, they offer trotting stock and cattle, to make their claim good.

Russell & Co., Massillon, Ohio, in a large and beautiful catalogue, illustrate their Threshing Machines and Sawmills, operated by their horse-powers, and by their various steam engines.

Thomas J. Ward, St. Mary's, Vigo Co., Ind.—Sends his price lists for poultry, and adds fruit and ornamental trees.

Gardner B. Weeks, Rochester, N. Y., well-known as a dealer in dairy implements, issues a pamphlet on the "Grappling Hay Fork and Railway Hay Conveyor." Every part is illustrated to the minutest detail, as all such implements should be.

Sowing Locust-Tree Seeds.—"G. B.," Cecilton, Md., writes us as follows concerning the Locust:—"There is not a more useful wood, or one of quicker growth. A tree on every square of four or five feet would be of far greater value than any grain crop. It can be cut every 12 or 15 years, and will renew itself. I have planted several hundred (all I could get), and have some seed saved from trees about the place. I do not know how to start Locust, which are very slow to vegetate."—Our correspondent is quite right with respect to the value of the Locust. The fact that in some years the borer has been very destructive, has generally deterred people from cultivating this tree. But the insect is not always abundant, and when the trees are near together, enough will escape injury to make the planting profitable. It will grow on very poor soil, which will yearly be improved by the fallen leaves. Pour scalding water over the seeds, and allow them to stand in a covered vessel until cold, then sow at once. These remarks apply to the *Robinia*, which in different parts of the country is known as the Yellow, White, and Black Locust, and not to the Honey Locust, a very different tree. We believe most seed dealers can supply the seed.

For MAY.

SPECIAL.

(*N. B.—The following offers hold good from the reception of this paper, up to May 31, next*):

Any person sending a subscription to the *American Agriculturist* for one year, at the regular rate ($1.50), will be presented with **any one** of the following, delivered by mail, post-paid, to any part of the United States or Territories (the Pot-grown Plants excepted):

No. 1.—Any one of the One Hundred Good Books described on pages 124 and 125 of the March number of the *American Agriculturist.*

OR,

No. 2.—The American Popular Dictionary, described on page 124 of March *American Agriculturist.*

OR,

No. 3.—24 Bidwell Strawberry Plants, post-paid; OR, 15 Pot-grown Bidwell Strawberry Plants, by express, unpaid, as described in March *American Agriculturist*, **page 124.**

OR,

No. 4. — The "American Agriculturist MICROSCOPE," described on page 173 of April *American Agriculturist.*

What Makes a "Subscriber?"—"J. F. B.," Montrose, Pa., writes that the first three months of a paper devoted to fruit culture were received by him, and he now is addressed as a "Delinquent Subscriber," and asked to "pay up." He did not order the paper and supposed these numbers were sent as sample copies. It has been held that taking papers regularly from the Post Office is presumptive evidence that the one so doing is liable as a subscriber. If continued for a considerable period, this is generally an equitable construction. But it would be very unjust to compel one to pay for a few copies received without having given any order, and examining them as invited to do so by the fact of their being sent. In this case, as reported by Mr. J. F. B. he can not be blamed for considering it "a low underhanded method of extorting money from innocent persons."—The invariable rule with the *American Agriculturist* for five and twenty years, has been to send out no copies that were not considered paid for, unless in special cases where there was some definite understanding to the contrary. Multitudes send us subscriptions for the paper to be mailed to friends, and sometimes the numbers are returned by the recipient as "not ordered," before the reason for sending them has been understood.

Mulberries for Fruit.—Several inquiries show that there is a renewed interest in this much neglected fruit. Half a century ago Mulberry trees were not rare in old gardens; they were called English, but were originally from Persia, and its fruit is not exceeded in quality by any other kind, though the tree is rather tender in northern localities. When the "Multicaulis" excitement prevailed, many thousands of trees were raised from seed, many of which were allowed to grow up, and among them were some which bore excellent fruit. One of these in the garden of a relative bore delicious fruit of a very pale purple tinge; another originating on the grounds of Charles Downing, at Newburgh, N. Y., has been propagated as "Downing's Everbearing Mulberry," and is the best kind for fruit, as it continues long in bearing, and the fruit is of excellent quality. It is to be had at all the nurseries.

One Hundred Cities.

In examining and comparing sundry figures from the Census Reports now being made up for 1880, and making some calculations, we collected the facts and items below, which will interest many readers of the *American Agriculturist*.—Our country lacked but one of having just One Hundred Cities containing Twenty Thousand Population and upward, and this one only needed 257 to reach the score of thousands, which is now doubtless attained. Finding that many of the reports published in the newspapers disagreed materially, we obtained direct from the Census Bureau the latest official revised figures, from which the items here given are made up. The table below gives the names of the cities with the population of each, in the order of their size.—Their total population ten years before (1870) was only 6,661,905 against 9,101,057 in 1880, an increase of 2,439,152, or 36¼ per cent, while the increase in the whole country was only 30 per cent, showing an unhealthful tendency to crowd into, and indeed over-crowd the cities, especially by new comers, as shown below. The largest per cent of increase was made by Denver, Col. (from 4,759 in 1870 to 35,629 in 1880); the next by Bay City, Mich. (7,064 to 20,693). *One* city exceeds a million population; *Four* exceed 500,000; *Ten* exceed 200,000; and *Twenty* exceed 100,000.

Of the total population in these 100 cities in 1880, over 51 per cent (or 4,645,239) were FEMALES, and less than 49 per cent (4,455,818) MALES.—Of the whole, the foreign born numbered 4,872,521, or over 53¼ per cent; and the native born, 4,228,533, or under 46¼ per cent. This is a remarkable fact. The total foreign population of the United States was, in 1880, only 6,679,943, or about 13 per cent of the whole 50,155,173. Again: Of this total foreign born population 4,872,521, or nearly 73 per cent, are crowded into the 100 cities, leaving only 1,807,419, or 27 per cent of them in all other cities, villages and the country. That is, outside of the 100 cities, 21 out of every 22 were born in this country.

		1880.			1880.
1	New York, N. Y.	1,206,299	51	Oakland, Cal.	34,555
2	Philadelphia, Pa.	847,170	52	Utica, N. Y.	33,914
3	Brooklyn, N. Y.	566,663	53	Portland, Me.	33,810
4	Chicago, Ill.	503,185	54	Memphis, Tenn.	33,592
5	Boston, Mass.	362,839	55	Springfield, Mass.	33,340
6	St. Louis, Mo	350,518	56	Manchester, N. H.	32,630
7	Baltimore, Md.	332,313	57	Saint Joseph, Mo.	32,431
8	Cincinnati, Ohio	255,139	58	Gr. Rapids, Mich.	32,016
9	San Francisco	233,959	59	Hoboken, N. J.	30,999
10	New Orleans, La.	216,090	60	Harrisburg, Pa.	30,762
11	Cleveland, Ohio	160,146	61	Wheeling, W. Va.	30,737
12	Pittsburg, Pa.	156,389	62	Savannah, Ga.	30,709
13	Buffalo, N. Y.	155,134	63	Omaha, Neb.	30,518
14	Washington, D. C.	147,293	64	Trenton, N. J.	29,910
15	Newark, N. J.	136,508	65	Covington, Ky.	29 720
16	Louisville, Ky.	123,758	66	Evansville, Ind.	29,280
17	Jersey City, N. J.	120,722	67	Peoria, Ill.	29,259
18	Detroit, Mich.	116,340	68	Mobile, Ala.	29,133
19	Milwaukee, Wis.	115,587	69	Elizabeth, N. J.	28,229
20	Providence, R. I.	104,857	70	Erie, Pa.	27,737
21	Albany, N. Y.	90,758	71	Bridgeport, Conn.	27,643
22	Rochester, N. Y.	89,366	72	Salem, Mass.	27,563
23	Alleghany, Pa.	78,682	73	Quincy, Ill.	27,268
24	Indianapolis, Ind.	75,056	74	Fort Wayne, Ind.	26,880
25	Richmond, Va.	63,600	75	N. Bedford, Mass.	26,845
26	New Haven, Ct.	62,882	76	Terre Haute, Ind.	26,042
27	Lowell, Mass.	59,475	77	Lancaster, Pa.	25,769
28	Worcester, Mass.	58,291	78	Somerville, Mass.	24,933
29	Troy, N. Y.	56,747	79	Wilkesbarre, Pa.	23,393
30	Kansas City, Mo.	55,785	80	Des Moines, Iowa	22,408
31	Cambridge, Mass.	52,669	81	Dubuque, Iowa	22,254
32	Syracuse, N. Y.	51,792	82	Galveston, Texas	22,248
33	Columbus, O.	51,647	83	Norfolk, Va.	21,966
34	Paterson, N. J.	51,031	84	Auburn, N. Y.	21,924
35	Toledo, O.	50,137	85	Holyoke, Mass.	21,915
36	Charleston, S. C.	49,984	86	Augusta, Ga.	21,891
37	Fall River, Mass.	48,961	87	Davenport, Iowa	21,831
38	Minneapolis, Minn.	46,887	88	Chelsea, Mass.	21,782
39	Scranton, Pa.	45,850	89	Petersburg, Va.	21,656
40	Nashville, Tenn.	43,350	90	Sacramento, Cal.	21,420
41	Reading, Pa.	43,278	91	Taunton, Mass.	21,213
42	Wilmington, Del.	42,478	92	Oswego, N. Y.	21,116
43	Hartford, Conn.	42,015	93	Salt Lake City	20,768
44	Camden, N. J.	41,659	94	Springfield, Ohio	20,730
45	St. Paul, Minn.	41,473	95	Bay City, Mich.	20,693
46	Lawrence, Mass.	39,151	96	San Antonio, Tex.	20,550
47	Dayton, O.	38,678	97	Elmira, N. Y.	20,541
48	Lynn, Mass.	38,274	98	Newport, Ky.	20,433
49	Atlanta, Ga	37,409	99	Po'keepsie, N. Y.	20,207
50	Denver, Col.	35,629	100	Springfield, Ill.	19,743

Total, 9,101,057.—Average, 91,010.

A Boy's "Book Plot."

In another part of this paper it will be seen that the boys in Delaware State are all invited to compete for prizes for the best quarter acre of corn. Several other similar local offers are made. One was announced for Orange County, N. Y., last month (page 145). We propose another plan which can be put in operation all over the country, and we see no objection to letting the boys invite their sisters to join them. It will not hurt them a bit to assist in weeding and watching the growth, but will help put a healthful glow on their cheeks. The plan is this:—

Let every boy of 7 or 8 years old and upward, ask father to let him have just one-quarter of an acre of ready plowed ground, all to himself, and promise to tend it at odd moments. On this ground plapt corn, or if corn will not grow well, plant it to beans or something that will do well. Study from the *American Agriculturist*, and inquire from others, what kind of corn for example will grow best. Unless the land is very fertile, see if some waste lots of manure are not left about the barn, or some black earth soaked with water from the yard, or some poultry droppings, cannot be gathered, and some ashes put in the hills with the soil, but not right on the seed. Study all these ways of making the corn grow as thriftily as possible. Any enterprising boy can readily put in and tend such a plot, and not let one weed grow on it, without neglecting his other work.

What will be the result?—It will be very poor land and poor cultivation that will not yield 10 bushels on a quarter acre. We believe most boys will get 20 bushels of good corn, but if the yield be on the average only 16 bushels, and the corn will sell for 40 cents a bushel, it will be worth $6.40; or if it sells for only 25 cents a bushel, it will bring $4.00. Now, there are not less than Two Hundred Thousand boys who read the *American Agriculturist*, and we believe that after leaving out the village and city boys who have no land (though most of the village boys can rent a quarter acre near by to work), there are at least a Hundred Thousand of OUR boys (those who read this paper) who can carry out the plan *this year*. If they get $5 worth of corn each, this will make *half a million dollars' worth!*

There are a great many useful ways to expend the corn money, that can be adopted, but we suggest the following:—Let this plot of ground be called the "BOOK PLOT," and expend the money obtained in good books. (We will tell by and bye a variety of books we would recommend). We have lived so long and watched so many boys grow up, that we are very sure every boy who does the above, and buys and reads the books, which will be all the more prized because he earns them himself, will be a great deal better man for it; and his chances of success in life in any calling will be largely increased. The fact that he, himself, *plans* the planting, fertilizing, studies the results, etc., will be of untold advantage.

To Make Posts Durable.—J. C. Johnson, Ohio. The "kyanizing" process you inquire about, is not practicable on the ordinary farm. The following is simple and effective: Burn the part of the posts to be set in the ground including the bottom end, just enough to leave a thin layer of charcoal all over the surface, and then dip them in hot tar or asphalt. The charcoal is indestructible by air and moisture; the tar or the asphalt fills the cracks and interstices, and thoroughly protects the interior wood. A barrel of tar or of asphalt is readily obtainable in any large city, costs but little, and will furnish a dip for several hundred posts. The heating can be done in any large iron kettle, with care not to have the material take fire. The charring can be done by building a large fire of waste brushwood and putting on the posts, turning them to prevent too deep burning in one place. Ordinarily the cost of labor and material need not be over 2 to 4 cents a post, while such preparation will three or fourfold their real value. As posts decay soonest just at the ground surface, "between wind and water," as the sailors say, it is best to have the coating extend half a foot above ground, and where looks are of no account, the whole post may be similarly treated, which will make them almost indestructible by decay.

The Cut Worms.—A subscriber in Indiana writes us that the corn in his section was seriously damaged by the "grub-worm" and wants to know how to prevent a repetition of the evil. By "grub-worm" our correspondent evidently refers to what are more accurately known as Cut-worms, of which there are about a dozen different kinds, the larvæ of as many species of moths. As those which attack corn are much alike in their habits, they may be treated as one. Several plans for preventing the depredations of the cut-worm have been proposed. Some of them are applicable only to small fields, and none of them have proved fully successful. As these grubs do not attack the grain, but merely prey upon the stalk, it is evident that soaking the seed in solutions, rolling it in lime, or the use of fertilizers containing materials supposed to be disagreeable to them, will be of no value except in hastening the development of the plants beyond the stage at which these pests prove destructive. The methods which have been found most useful are: giving the land one or two extra plowings (one of them in the fall, if possible), in order to expose the grubs to the attacks of the birds which are their natural enemies. Going over the fields with a pair of wheels which have been fitted with spur-like projections which will make holes three or four inches deep in the soil when the wheels are turned. The worms follow the smooth tracks made by the rims of the wheels, fall into the holes from which they are unable to escape, and in which they are killed by the heat of the sun. A similar method on a smaller scale is used in the garden. A piece of scantling a foot or two long is fitted with a handle. On the lower side of this several pegs are attached to make holes in the soil when the implement is pressed down. In the morning, the same tool may be used to crush the worms that have fallen into, or taken refuge in these holes. Fires built in the fields occasionally on summer evenings, from the middle of June to the last of July, when they are most abundant, will attract and destroy large numbers of the moths which are the parents of the worms. It is important to kill the insect whenever found, in either of its stages of development. In this way the ravages of the individual are checked and the production of multitudes prevented.

About Maps.—How Large is Mexico?—The map makers sometimes give us very erroneous impressions of the size of countries. Our geographies put down our own country on a large scale and spread single States over great folio pages, where they occupy as much space as the whole of Europe, and most foreign countries are inserted towards the end of the book, in small size. We were not a little amused when in Europe to find their maps got up on a similar plan. In a German book of maps, we found even a little Duchy, not so large as Rhode Island, covering more space than was given to the United States of America, and the latter was at the end of the book. But we minify places on our own continent. Mexico, for example, usually occupies a small lower left-hand corner of our maps. But its actual area, which is 743,948 square miles, is almost exactly as large as all of the twenty-five States east of the Mississippi River, leaving out only Illinois and Wisconsin. But the total population of Mexico (9,391,371) is barely twenty five thousand greater than that of the two States of New York and Pennsylvania!

Shoulder-Straps for a Wheelbarrow.—We have long seen in occasional use, and long used a simple arrangement for relieving the hands and arms in carrying loads upon the ordinary wheelbarrow, and in this as with many other simple devices, it did not occur to us that everybody did not know of it. A letter from an intelligent correspondent, Mr. Marsh, of Danbury, Conn.—a State so noted for notions and devices that one would almost say, "what a Connecticut Yankee does not

know about devices is not worth knowing"—says it is new to him, and is so convenient and useful that everybody ought to know of it. And, by the way, we want to say right here, that almost every one of our readers knows of some labor-saving, labor-helping devices that not half of the world knows anything about, and we earnestly invite all to send us descriptions of such things, however simple and common they may seem to themselves. Send rough pencil or pen sketches when practicable. With our artists and engravers we can usually make them plain to the eye and understanding. Please do this to day, and next month, and all along through this year and the next.—But to the case in hand. A strap, of webbing or of leather, or of any strong fabric (we have seen bed-ticking used) of suitable length, has loops in the two ends to slip over the wheelbarrow handles. This is thrown over the shoulders, and to them may be transferred a part or the whole of the weight. It can be provided in a few minutes, and will be found of decided advantage. The engraving explains the arrangement.—A buckle a foot or more from one end of the strap would allow the length to be changed as desired, so as to be "short enough for a boy, or long enough for a long man." The wheelbarrow is one of the handiest implements on the farm, and no place should be without one.

Separating Honey.—A correspondent, who has not hives enough to warrant the purchase of an "Extractor" asks how he can separate the honey from the comb without one. There are two methods. One is to break up the combs and place them on a colander, and allow the honey to drain from them into a pan, occasionally stirring the mass. Another is to place the combs in a vessel and gradually heat. The wax will melt and rise to the top; when cool, this may be separated from the honey below, as a solid cake. At the same time any impurities will settle to the bottom of the honey from which it should be carefully poured.

Publishers' Department.

Rice's Steel Plate Engraving of the late James A. Garfield, published by J. C. McCurdy & Co., Philadelphia, is far superior to any other picture we have seen of the martyred President; it makes a very appropriate ornament for every home.

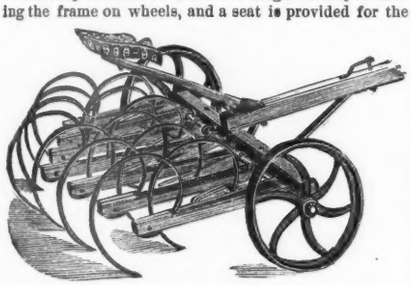
Removal and Change of Name. — The Hagerstown, Md., Agricultural Implement Manufacturing Co. has removed its business to Newark, Ohio, and changed its name to Newark Machine Co.

"Structural Decoration" is the title of a neat illustrated pamphlet full of valuable hints and suggestions to those about to paint their buildings. Published by H. W. Johns Manufacturing Co., 87 Maiden Lane, New York, and sent free to applicants.

The Pacific Guano Company of Boston is one of the oldest concerns of the kind in the world, and embraces in its management such men as George W. W. Dove, the President, John M. Glidden, the Treasurer, C. H. Amory, Louis Curtis, A. T. Crowell, P. H. Sears, and W. P. Warren. The sales are probably larger than those of any other company. For example their sales of Soluble Pacific Guano during last year amounted to fifty-five thousand tons as against 754 tons in 1865.

Ridding Sheep of Lice.—We receive many inquiries as to the best means of ridding sheep of lice and other parasites. The Ninth Annual Report of the New Jersey Board of Agriculture, just at hand, states that Little's "Sheep Dip" has been adopted with complete success on the sheep farm of the Secretary of State (Henry E. Kelsey), located in Sussex County. This dip or fluid which is rapidly coming into use in the United States has, it is claimed, no poisonous qualities, and can be used to destroy lice on other animals as well as sheep; it is also used as an internal remedy for worms, and as a wash for sores.

A New Harrow.—In our boyhood days, on a farm so far west as to make it very expensive to get iron for ordinary purposes, the wooden mold-board on the plow, and wooden harrow teeth, were a necessity. The improvements in harrows during fifty years past have been mainly in the introduction of iron teeth, then steel-pointed ones, then strong all steel in the three-cornered or A harrow. Next came the square, the oblong, and finally the jointed, double-jointed, or sectional harrows, when improvements halted. Now comes what is claimed to be a further advance, the "spring teeth," as shown in the La Dow harrow, illustrated herewith. The teeth are set on independent movable beams, so that they adapt themselves to uneven ground, and do not clog, while it is claimed that their flexibility increases their pulverizing action. The pitch of the teeth is readily adjusted to run deep or shallow. The draft is lightened by mounting the frame on wheels, and a seat is provided for the



THE LA DOW SPRING TEETH WHEEL HARROW.

driver when desired. The implement can also be run backward. By turning the teeth back upon the bar, the harrow can be moved from field to field as readily as a cart, while by turning part of them back the rest can be used as markers. When desired, a force-feed broadcast sower is supplied as an attachment, for sowing and covering grain at one operation, the depth of the covering being regulated by the adjustment of the teeth.

Asphalt and Concrete Walks.—"W. L. N.," Wheatland, Iowa. The various concrete walks are so covered by patents that one is in danger of infringing upon them. We have seen good walks made in the following manner; having known of its use more than 20 years, we do not think it is patented: The earth is excavated to the depth of three inches, and edgings made of bricks set on end, or of planks. Three parts of gas tar and one of common pitch are melted together, and this mixture is added to dry sand, as little as will wet it throughout and make the particles cohere, mixing it like mortar, and spreading it evenly. The surface is then sprinkled with dry sand, and boards laid on, which are pounded upon, to make a hard and smooth surface. It is then rolled, using dry sand to prevent the material from adhering to the roller. The walk will become hard in a few days. We have known walks to be made with cold gas tar and sand, but these take a long while to harden. Coal ashes may be used with the sand in proportion of a third to a half, and treated the same. Care should be taken to use as little of the tar as will cement the particles together, or a hot sun will soften it.

Oat Crop of the United States.—Probably few are aware of the extent of oat culture. The Census Report for 1880 gives the total yield of wheat at 459,591,093 bushels, grown on 35,487,065 acres, while the Oat crop was 407,970,712 bushels, grown on 16,150,611 acres. We have compiled and arranged from the reports the following interesting items showing the amount of the Oat Crop, its acreage and average yield in the whole country, and in the diffrent States where not less than half a million bushels were raised during the census crop year (1879). It will be noticed that about one-sixth

	Bushels.	*Acres.*	*Average ℔ Acre.*
TOTAL in United States....	407,970,712	16,150,611	25¼
Illinois	63,206,250	1,959,853	32½
Iowa	50,612,131	1,507,490	33½
New York	37,575,506	1,261,171	28⅞
Pennsylvania	33,847,439	1,237,593	27⅜
Wisconsin	32,911,246	955,276	34½
Ohio	28,664,505	910,388	31½
Minnesota	23,372,752	617,427	36½
Missouri	20,673,458	968,473	21⅜
Michigan	18,190,493	536,167	34
Indiana	15,606,721	623,600	25
Kansas	8,180,385	435,853	18¾
Nebraska	6,515,565	250,399	26⅛
Georgia	5,544,161	612,350	9⅛
Virginia	5,333,081	563,423	9⅜
Texas	4,868,916	236,795	20½
Tennessee	4,722,938	468,638	10⅛
Kentucky	4,582,968	403,444	11⅜
Oregon	4,393,593	151,366	28⅝
N. Carolina	3,830,622	499,512	7⅝
Vermont	3,742,282	99,548	37⅝
New Jersey	3,710,808	137,426	26⅝
Alabama	3,089,274	324,481	9⅝
Dakota Territory	2,331,230	89,792	26
Maine	2,265,575	78,335	24⅝
Arkansas	2,187,777	164,238	13⅓
Mississippi	1,959,620	198,497	10
West Virginia	1,908,505	126,931	15
Maryland	1,794,872	101,127	17¾
Washington Territory	1,581,951	37,946	41⅝
California	1,355,871	49,947	27
New Hampshire	1,018,106	29,434	34½
Connecticut	1,009,706	36,691	27½
Montana Territory	900,915	24,691	36½
Massachusetts	645 169	20,660	32¾
Idaho Territory	462,236	13,197	35
Utah Territory	417,938	19,514	21½

of the entire crop is grown in Illinois; about one-eighth in Iowa; about one-eleventh in New York; over thirty million bushels each in Pennsylvania and Wisconsin; over twenty million bushels each in Ohio, Minnesota, and Missouri; eighteen millions in Michigan; over fifteen millions in Indiana; after which the crop drops to eight millions and below.—A remarkable difference appears in the *average yield per acre*, viz: from over 41 bushels in Washington Ter. down to less than 8 bushels in N. Carolina. The table shows what States get the best yield.

P. S.—Since the above was put in type, we have received the estimate of the Oat Crop of the United States for 1881, by J. R. Dodge, Statistician to the Bureau of Agriculture. He estimates the total crop at 416,481,000 bushels, grown on 16,831,600 acres, and averaging 24 7/10 bushels per acre, of which sixteen States are accredited with over five million bushels each, as follows:

States.	*Bushels.*	*Acres.*	*Average ℔ Acre.*
Illinois	66,094,000	1,979,400	33.4
Iowa	42,434,000	1,618,700	26.2
Pennsylvania	38,579,000	1,212,700	31.8
New York	38,160,000	1,324,700	28.8
Wisconsin	31,204,000	1,092,200	28.6
Ohio	25,009,000	902,300	27.7
Minnesota	23,760,000	667,700	35.6
Missouri	22,783,000	959,200	23.8
Michigan	18,057,000	552,000	32.7
Indiana	15,711,000	683,000	23.
Kansas	8,754,000	441,700	19.8
Texas	8,324,000	311,100	26.8
Nebraska	6,976,000	325,300	21.4
Tennessee	6,726,000	472,100	14.2
Kentucky	6,534,000	400,500	16.3
Georgia	5,566,000	612,300	9.1

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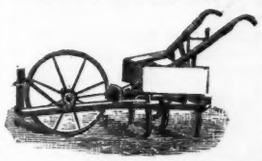

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By the use of the cutter we take from the Hog its power to root, by removing a section or piece of the tendon or muscle which operates the shovel at the end of the nose. This instrument passes through the skin and under the tendon; when the operation is performed it is withdrawn, bringing out with it the piece of tendon. It does not cut out a particle of the skin or flesh, therefore the wound heals quickly. It leaves the Hog as powerless to root as you would be to use your finger when a portion of the tendon or leader was taken from it. While performing the operation, the Hog must be held perfectly steady, and for that reason, you will want our holder which excels anything in that line ever invented.

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Messrs. EWING & Co., of Decatur, Ill., were out at my farm at Casner Station, Macon Co., Ill., on March 7th, and operated on some hogs with their Anti-Rooter, to the entire satisfaction of myself and others present at the time, as it has proven up to this date. The hogs have not rooted a particle since the operation, and are doing well. I have used rings as often as twice a month on the same hogs, and then they *would root*. The Conqueror and Anti-Rooter, both are a success without a doubt.—L. B. CASNER. (Copy.)

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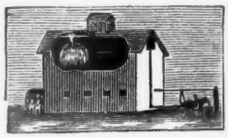

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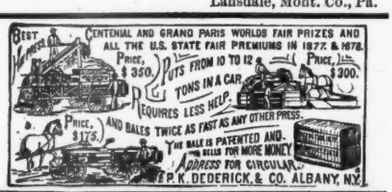
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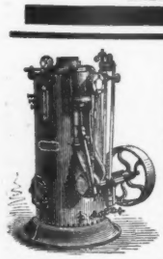

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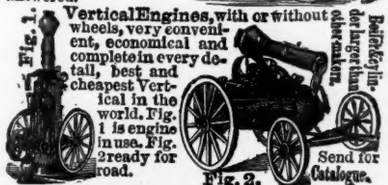

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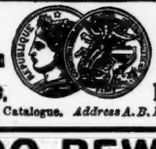

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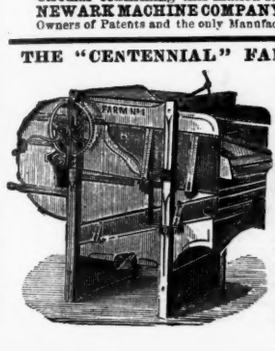

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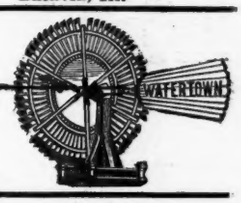

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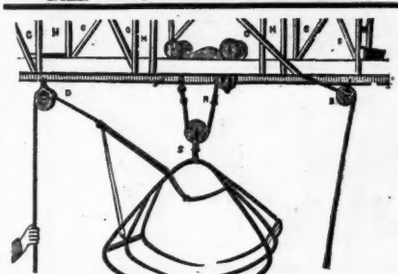

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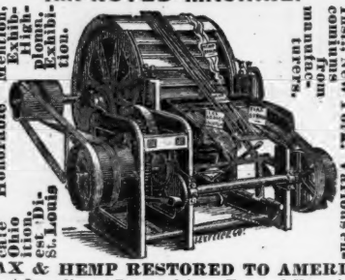

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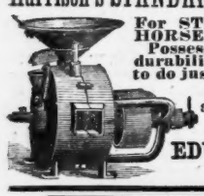

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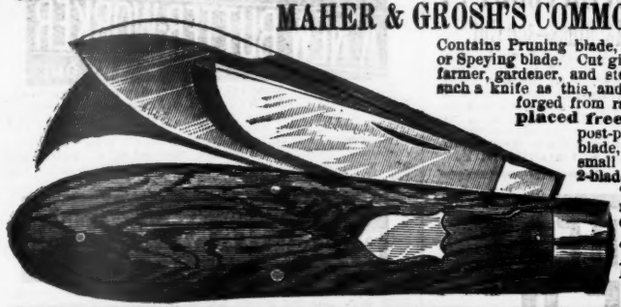

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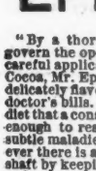

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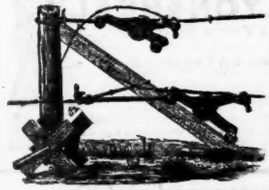

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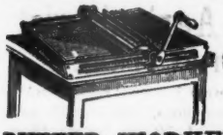

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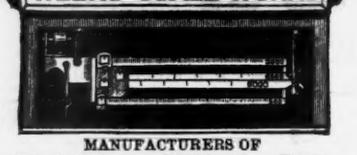

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